IMPACT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY OF SUGAR INDUSTRY: A COMPARATIVE STUDY OF UNITS IN ANDHRA PRADESH AND TELANGANA

A Thesis Submitted to
Jawaharlal Nehru Technological University Anantapur

For the award of

DOCTOR OF PHILOSOPHY

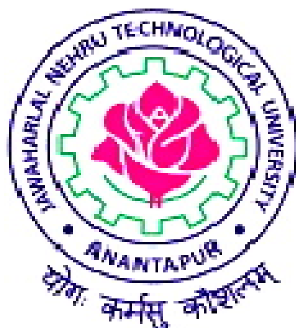
in

FACULTY OF MANAGEMENT

By

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Under the guidance of
Dr. LOKANANDHA REDDY IRALA



RESEARCH AND DEVELOPMENT

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

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APRIL - 2019

DECLARATION

I declare that the thesis entitled "**IMPACT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY OF SUGAR INDUSTRY: A COMPARATIVE STUDY OF UNITS IN ANDHRA PRADESH AND TELANGANA"** has been prepared by me under the guidance of **Dr. LOKANANDHA REDDY IRALA,** Associate Professor, School of Management Studies, University of Hyderabad, Hyderabad, Telangana. No part of this thesis has formed the basis for the award of any degree or fellowship previously.

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CERTIFICATE

This is to certify that the thesis entitled **"IMPACT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY OF SUGAR INDUSTRY: A COMPARATIVE STUDY OF UNITS IN ANDHRA PRADESH AND TELANGANA"** is being submitted by **MEENA G.L** bearing Roll. No. **10PH1002** in partial fulfillment for the award of degree of **Doctor of Philosophy (Ph.D.) in Management** to the Jawaharlal Nehru Technological University Anantapur, Anantapuramu is a record of bonafide work carried out by her under my guidance and supervision. The results embodied in this thesis have not been submitted to any other University or Institute for the award of any degree or diploma.

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PREFACE

In highlighting the importance of sugar industry in the society, it is the basic fact that directly or indirectly everyone is consuming the sugar in the present-day scenario. Therefore, sugar can be categorized as an important consumption good for all the household's purposes. The growth of sugar industry has added great importance by facilitating the growth of by-products. Sugar industry is most significant contributor for state and central revenue. The sugar industry provides direct employment to about 3.35 lakh workers besides providing indirect sustainability to 30 million sugarcane growers all over the country.

The sugar industry is experiencing the low profitability and lower rate of return on capital employed due to non-professionalized working capital management. This has affected the sector inability to raise the required funds to meet the immediate needs as well as future requirements for modernization of the industry and future expansion. One of the main reasons for poor performance is failure in maintenance of liquidity leading to low profitability.

The basic purpose of the study is to have a deep insight into the impact of working capital on profitability of private sugar industry in Andhra Pradesh and Telangana. There are several studies available on the working capital management of sugar industry and a few research studies have been undertaken on impact of working capital management on profitability in general. However, specific research studies exclusively on impact of working capital components on profitability are 'scanty'. Therefore, an attempt has been made in this research work to study the impact of working capital components on profitability of select private sugar factories in Andhra Pradesh and Telangana. This study would be useful to analyze the impact of working capital components on profitability of select private sugar companies in Andhra Pradesh and Telangana. To suggest suitable measures for effective and efficient working capital management and to improve corporate profitability.

ABSTRACT

India is treated as the original home of sugar and sugarcane. Indians knew the art of making sugar since the fourth century. World Sugar Production and Consumption India had been is considered top second position in production of sugar and top position in consumption of sugar.

Sugarcane is important cash crop grown in India. More than 50 million farmers and their families are dependent on sugarcane for their livelihood. The sugar industry is a green industry and is largely self sufficient in energy needs through utilization of biogases for generating electricity and steam. In fact, the sugar industry generates surplus exportable energy through co-generation and contributes in reducing the energy deficit that India is currently facing.

The sugar industry is experiencing the low profitability and lower rate of return on capital employed due to non-professionalized working capital management.

Prior research has found that sugar companies, operating in India are severely affected by the acute problems like ‘shortage of working capital’, ‘poor liquidity’ and ‘poor profitability’. Profitability is positively related with liquidity, efficiency of management and financial structure of the company. The present study deals with analyzing the impact of working capital management on profitability of sugar industry in Andhra Pradesh and Telangana, to analyze and find out that there is any impact of difference in working capital components in Andhra Pradesh and Telangana.

In this study computation and comparison of different financial ratios is carried out. Along with it significant difference in level of various working capital components (Current Ratio, Quick asset, Gearing, debtor to current assets, stock to current assets, current assets to total assets, current liabilities to total assets, current assets turnover, firm size, inventory in days, receivables in days, payables in days, cash conversion days) and profitability measures (profitability margin) among the selected sugar industries and between Andhra Pradesh and Telangana.

The study determined Correlation between working capital components(Inventory in Days, Receivables in Days, Payables in Days and Cash Conversion Cycle) with Profitability (ROTA). The Means of key working capital components are significantly different among the select units of Andhra Pradesh and

Telangana. The study revealed Overall, working capital components like inventory period, accounts receivables period, accounts payables period and cash conversion cycle are correlated with Profitability(ROTA) of select units in Andhra Pradesh and Telangana states.

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LIST OF ABBREVIATIONS

DGCIS	-	Directorate General of Commercial Intelligence and Statistics
CACP	-	Commission for Agricultural Costs and Prices
SMP	-	Statutory Minimum Price
FRP	-	Fair and Remunerative Price
AP	-	Andhra Pradesh
ISMA	-	Indian Sugar Mills Association
CA	-	Current Assets
TA	-	Total Assets
CARR	-	Compound Annual Growth Rate
CL	-	Current Liabilities
CR	-	Current Ratio
FBH	-	Federation of Bosnia and Herzegovina
GDP	-	Gross Domestic Product
Gms	-	Grams
MNCs	-	Multi National Corporations
MT	-	Million Tons
Pvt	-	Private
ROTA	-	Return on Total Assets
CCC	-	Cash Conversion Cycle
WC	-	Working Capital

1. INTRODUCTION

1.1 Working Capital

Working capital is a financial metric which represents operating liquidity available to a business, an organization or entity. It refers to the cash available for day-to-day operations of an organization. It is a fund used to meet short term expenses of the firm. It is also called as current capital.

1.1.1. Working Capital Management

Working Capital Management involves managing the balance between firm's short-term assets and its short-term liabilities. The goal of working capital management is to ensure that the firm is able to continue its operations and that it has sufficient cash flow to satisfy both short-term debt and upcoming operational expenses.

Finance Manager has to pay particular attention to the levels of current assets and their financing. In determining optimum level of current assets, the firm should balance the profitability – solvency tangle by minimizing total costs.

1.1.2. Working Capital Cycle

Working Capital cycle indicates the length of time between company's paying for materials, entering into stock and receiving cash from sales of finished goods. It is also called as Operating Cycle or Cash Conversion Cycle. It analyzes the accounts receivable, inventory and accounts payable in terms of number of days.

1.1.3. Managing the three operational components of Working Capital

Companies need to manage all three components simultaneously across the value chain so as to drive fundamental reductions in asset levels. A realistic plan with clear priorities is the best approach. An overly ambitious agenda can overstrain internal capabilities and deliver sub-optimal results. Instead, companies should concentrate on the most promising actions that will not impair flexibility and performance. These actions will vary depending on industry and competitive situation, and have to be adapted to country specifics and regulations.

1. **Reduce inventory holding period:** Inventory is one of the most overlooked sources of cash, typically accounting for almost half of the savings from working capital

optimization projects. By streamlining processes within the company—as well as processes involving suppliers and customers—companies can minimize inventory throughout the value chain.

2. **Speed up receivables collection:** Many companies are early payers and late collectors—a formula for squandering working capital. Other companies—particularly project-based businesses and manufacturers of large, costly products with lengthy production cycles—have cash flow problems caused by a mismatch in timing between costs incurred and customer payments. Therefore, efficient management of receivables and prepayments received is crucial.

3. **Rethink payment terms with suppliers:** If fast-paying companies are at one end of the spectrum, then companies that "lean on the trade" and use unpaid payables as a source of financing are at the other. Between these two extremes there is a more effective, integrated approach to payment renegotiation that takes into account all aspects of the customer–supplier relationship, from price and payment terms to delivery time frames, product acceptance conditions, and international trade definitions.

1.1.4 Profitability and liquidity

The basic objective of every business is to attain profitability and maximizing the profitability. Profit is excess of earnings over the cost of the business. Liquidity is ability of company in meeting its commitments. Profitability and liquidity are the most imperative issues which need to be balanced against each other.

1.1.5 Over view of Working Capital in India

A review of the Working Capital (WC) performance of leading companies in India for FY2016 indicates a deterioration over FY2015, with Cash to Cash (C2C) days increasing by 5%. However, if the oil and gas (O&G) and metals and mining (M&M) sectors are excluded from our calculations, the C2C would remain flat. The C2C of the O&G and M&M sectors (combined) reduced by 22% and 64% as compared to FY2015 and FY2011, respectively, because of a significant decrease in the oil prices.

To stay competitive in the global market, Indian companies need to establish and execute focused programs to release free cash from WC to fund growth.

Companies should explore traditional and innovative WC funding techniques with the goal of improving the overall cash flow position. To achieve this, the changes required will include:

• Managing WC as an ongoing strategic priority rather than a point-in-time intervention

• Focusing on overall operating cash flow rather than improving trade-offs between cash, costs and services

• Embedding cash culture in the organization across functions, with focus on target setting and metrics measurement

• Establishing robust governance and transparent reporting of WC

• Improving billing and cash-collection processes, and more effectively managing the payment terms

• Improving supply chain processes to reduce inventory holding and release trapped cash

1.2 An overview of sugar industry

In highlighting the importance of sugar industry in the society, it is the basic fact that directly or indirectly everyone is consuming the sugar in the present-day scenario. Therefore, sugar cab be categorized as an important consumption good for all the household's purposes. Sugar is observed to be main dominating position among sweet factors such as Gur, Khandsari as the sugar acts as raw material for producing these two products. Sugar harvesting has astonishing feet in cultivation because two crops the cultivator can harvest on the same crop without re-cultivation.

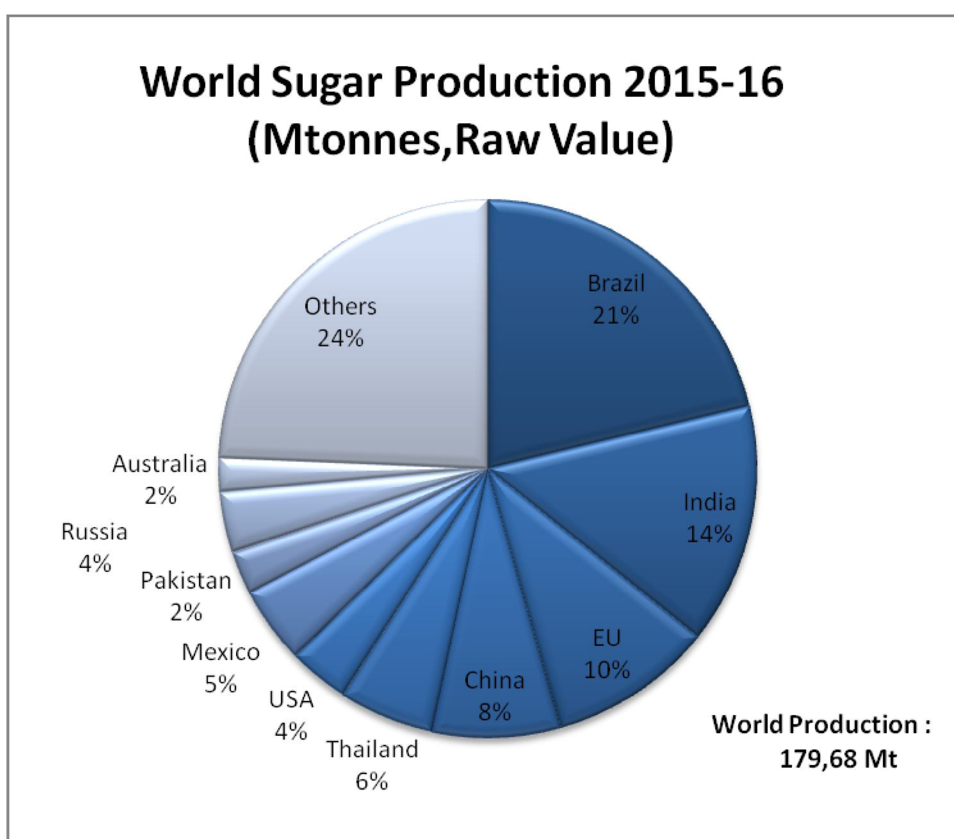
The growth of sugar industry has added great importance by facilitating the growth of by-products. Sugar industry is most significant contributor of state and central revenue. The sugar industry provides direct employment to about 3.35 lakh workers besides providing indirect sustainability to 30 million sugarcane growers all over the country.

1.2.1 World Sugar Industry

World Sugar Production

According to the world sugar production 120 countries are producing sugar and global production in a year is up to 180 million tons. Approximately 80 percentage is produced from sugar cane, which is highly grown in tropical countries. The remaining 20 percentage is produced from sugar beet, which is mostly grown in the temperate zones of the northern hemisphere. 70% countries produce sugar from sugar cane, 40% from sugar beet, and 10% from both.

Figure:1.0 World Sugar Production, 2015-16



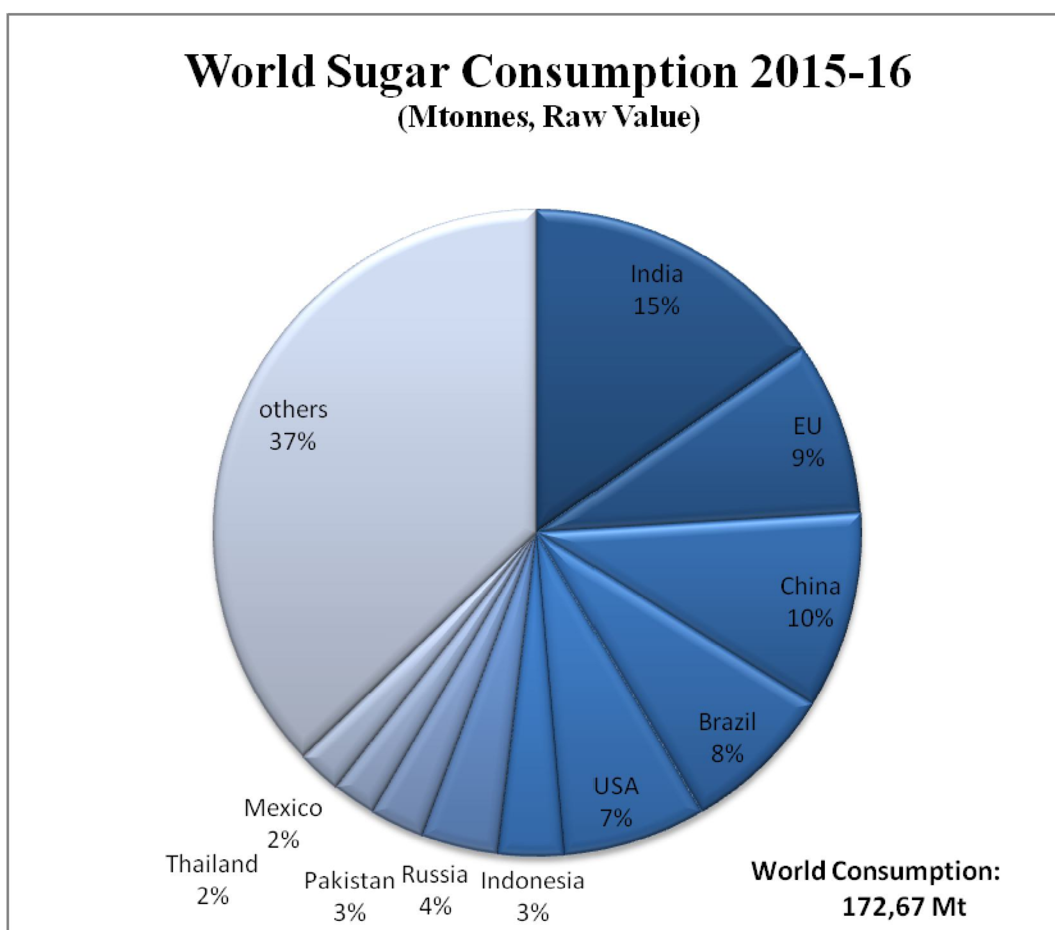
Source: http://www.sucden.com

The above figure representing 10 largest sugar producing nations across the globe. Among the different countries Brazil is considered as the top producer in global production with 21%. Whereas, India has stood in second position by producing 14% of the world sugar production for the year 2015 - 2016.

World Sugar Consumption

At the Initial stages of 20th century, a world population of 1.6 billion people consumed roughly 8 million tons of sugar, i.e. 5,1 kg per capital. The 10 largest sugar consuming nations represent two-thirds of total world consumption. White sugar consumption in developed countries can be considered as saturated, whereas developing countries are considered as growing markets, particularly in Asia and to a lesser extent, in the Middle-East and Africa.

FIGURE 1.1: World Sugar Consumption 2015-16



Source: http://www.sucden.com

The above figure is depicting the 10 largest sugar consuming nations. Among the different countries India is considered as the top in global consumption with 15%. The European Union, China, Brazil, USA, Indonesia, Pakistan, Mexico and Thailand had occupied 9%, 10%, 8%, 7%, 3%, 4%, 2%, 2% respectively in the world sugar consumption for the year 2015 to 2016.

Overall view on World Sugar Production and Consumption, India stood in top second position in production of sugar and top position in consumption of sugar. Whereas, Brazil is placing top position in producing the sugar.

1.2.2 Sugar industry in India

India is treated as the original home of sugar and sugarcane. Indians knew the art of making sugar since the fourth century. The Chinese Emperor, Tsai-Hang sent a mission to Bihar in about 600 A.D. to ascertain and study the area of sugar manufacturing. From India, the knowledge of sugar manufacturing went over to Persia. However the process of modern sugar manufacturing may be said to have started with the adoption of a policy of discriminating protection by the government of India in 1932.

Indian sugar industry can be broadly classified into two sub sectors, the organized sector i.e. sugar factories and the unorganized sector i.e. manufacturers of traditional sweeteners like gur and khandsari. India is the largest single producer of sugar including traditional cane sugar sweeteners like khandsari and Gur equivalent to 26 million tons raw value followed by Brazil in the second place at 18.5 million tons. Even in respect of white crystal sugar, India has ranked No.1 position out of 7 countries for last 10 years. Presently, about 4 million hectares of land is under sugarcane with an average yield of 70 tonnes per hectare. Indian sugar production is characterized by a cyclical production pattern with typical sugar cycles lasting 2-3 years, as production adjusts to fall in price which in turn leads to lower supplies, price increase and higher production. According to USDA Abhinav National Monthly Refereed Journal of Research In Commerce & Management, India is the largest consumer and second largest producer of sugar in the world. In year 2006-2007 India produced 28.5 million tons and consumed 20 million tons of sugar. India has exported around 1.5 million tons of sugar after the ban on sugar exports was lifted in January, 2007. With an opening stock of 4 million tons in 2005-06, India will end the year with stocks of more than 11 million tons.

Sugar production in India has been cyclic in nature. From the sugar season 2010-11 onwards the country could consistently achieve sugar production more than the domestic requirements and could also generate surpluses for export. Maharashtra and Uttar Pradesh contribute over 60 percent of total sugar production while rest

comes from States like Tamil Nadu, Karnataka, Gujarat and Andhra Pradesh. In the 3rd Advance Estimates of the Department of Agriculture and Cooperation (DAC), released in May 2014, the sugarcane production is estimated at 3,483.8 lakh tons in the current sugar season. The production of sugar during 2013-14 season was estimated at 243 lakh tons as against the estimated domestic consumption of 240 lakh tons. The Production of sugar from 2001-02 to 2015-16 is as under.

Table-1.1: Total Sugar Production in India *(Quantity in lakh Tons)*

Year	Production of Sugarcane	Production of Sugar
2001-02	2972.08	185.28
2002-03	2873.83	201.45
2003-04	2338.62	135.46
2004-05	2370.88	126.90
2005-06	2811.72	192.67
2006-07	3555.20	283.67
2007-08	3481.88	263.57
2008-09	2850.29	145.39
2009-10	2923.02	189.12
2010-11	3423.82	243.94
2011-12	3610.37	263.43
2012-13	3389.63	251.41
2013-14	3500.21	243.73
2014-15	3654.32	262.34
2015-16	3568.42	249.56

Source: National Federation of Cooperative Sugar Factories Limited, Cooperative Sugar, November, 2016, p.28[1]

Government Norms in Sugar Industry

Sugar is a regulated industry in India. sugar is an essential commodity, and is covered by the Essential Commodities Act, 1955 and consequently, its production

supply and distribution are regulated by the government. The Cane Commissioner of each state reserves and assigns areas for the supply of sugarcane to factories on an equitable basis. The purchase price of sugarcane is regulated and the central government fixes the SMP, which must mandatorily be paid by sugar producers to sugarcane growers, within a specified time. The Government of India, through the Sugar Directorate, can further fix the quantity and quality of sugar that may be produced by a factory during any year and can also regulate the sale of sugar. Sugar mills must sell a specified percentage of sugar , which is currently at 90 per cent of their production in the open market and are therefore subject to the forces of demand and supply. 10% Levy sugar must be sold as per government directions through fair price shops and the public distribution system at government notified prices, which may be set below the cost of production. Under the Sugarcane (Control) Order 1966, the Government of India fixes the Statutory Minimum Price ("SMP")[2] for sugarcane each year based on the recommendations of the Commission on Agricultural Costs and Prices, which takes into account factors such as the cost of cultivation, return to factories and average recovery for previous year. The SMP is fixed for a given base level of recovery and is the minimum price that is required to pay the farmers from whom we purchase cane. A portion of the sugar manufactured by sugar companies is bought by the Government of India as "levy sugar" at a price that is fixed by the Government of India. The remaining sugar is known as "free sale sugar" and is sold at a price that is determined by market factors such as availability.

De-Regulations of Sugar Sector

The central government considered the recommendations of Dr. C. Rangarajan Committee on de-regulation of sugar sector and decided to do away with levy obligation on sugar mills for sugar produced after September 2012 and dispense with the regulated release mechanism on open market sale of sugar. The de-regulation of the sugar sector is likely to improve the financial health of the sugar mills, increase the cash flow, reduce their inventory cost and also result in timely and better payment of cane price to sugarcane farmers in the country. The recommendations of the Committee relating to Cane Area Reservation, Minimum Distance Criteria and adoption of the Cane Price Formula have been left to the State Governments for adoption and implementation, as considered appropriate by them.

India's Trade in sugar

India has been a net exporter of sugar. However, it has been occasional net importer of sugar depending upon demand and supply situation in the country. As per the data provided by the Directorate General of Commercial Intelligence and Statistics (DGCIS)[3], India's export of sugar was highest in 2007-08 and import was on its peak in 2009-10. Import and Export of Sugar from 2005-06 to 2013-14 is as under:

Table1.2: Import and Export of Sugar *(Quantity in lakh Tons)***

Sugar Season	Export of Sugar	Import of Sugar
(Oct-Sept)		
2005-06	15.039	0.07**
2006-07	24.90	0.005**
2007-08	58.23	0.004**
2008-09	2.165	24.47***
2009-10	2.371	41.80***
2010-11	28.14	3.65**
2011-12	36.735	1.886**
2102-13	12.02	17.120**
2013-14	24.457	9.100**
2014-2015(P)	33.365	11.341**
2015-2016(P)	26.712	7.376**

Source: Note of Directorate of Sugar 2016 p.13

** As per Data furnished by DGCIS Kolkata.

*** As reported by Department of Revenue.(P) provisional

Despite the lower production, ISMA ruled out any possibility of imports saying there are sufficient stocks available with mills from the previous year. As per ISMA’s estimates, the 2016-17 sugar season will close in September with 4.85

million tonnes of surplus stocks. India's domestic consumption of sugar is estimated at over 25 million tons per year. Top ten states in India producing Sugar are-Uttar Pradesh, Maharashtra, Tamilnadu, Karnataka, Andhra Pradesh, Bihar, Gujarat, Haryana, Panjab, Uttar khand.

Sugarcane is primarily grown in nine states of India: Andhra Pradesh, Bihar, Gujarat, Haryana, Karnataka, Maharashtra, Punjab, Uttar Pradesh and Tamil Nadu. More than 50 million farmers and their families are dependent on sugarcane for their livelihood. The sugar industry caters to an estimated 12 percent of rural population in these nine states through direct and indirect employment. Effectively, each farmer 19 Sugar is a sector of significant importance to the national economy. While consumption has been growing historically, the production has been cyclical. At present, the sugar industry is regulated across the value chain. Investments in by-products are at a nascent stage, and the sector has struggled to generate a return on invested capital in excess of its cost of capital in most years, primarily due to a high mandated fixed cane price and a volatile sugar price. Effectively, each farmer contributes to the production of 2.9 MT of sugar every year. In addition to farmers, an estimated 0.5 million workers are directly employed as agricultural labour involved in cultivation and harvesting. The sugar industry also supports diversified ancillary activities and skills that support the local economy. The dependent population creates substantial demand for local goods and services. In addition to the sugar industry's contribution to the rural economy, it has significant social and economic impact for the nation as well. The sugar industry is a green industry and is largely self sufficient in energy needs through utilisation of biogases for generating electricity and steam. In fact, the sugar industry generates surplus exportable energy through cogeneration and contributes in reducing the energy deficit that India is currently facing. The sugar industry is also the primary source of raw material for the alcohol industry in India. The annual economic contribution of the sugar industry to the exchequer through principal indirect taxes amounts to more than INR 2800 crores.

Sugarcane Pricing Policy in India

With the amendment of the Sugarcane (Control) Order 1966 on 22 October 2009 the concept of Statutory Minimum Price (SMP) of sugarcane was replaced with the 'Fair and Remunerative Price (FRP) of sugarcane for 2009-10 and

subsequent sugar seasons. The cane price announced by the Central Government is decided on the basis of the recommendations of the Commission for Agricultural Costs and Prices (CACP) after consulting the State Governments and associations of sugar industry.

Under the FRP system, the farmers are not required to wait for the end of the season or for any announcement of the profits by the sugar mills or the Government. The new system also assures the margins on account of profit and risk to farmers irrespective of the fact whether the sugar mills generate profit or not and is not dependent on the performance of any individual sugar mill. Citing difference in the cost of production productivity levels and also as a result of pressure from farmers' groups some States like Uttar Pradesh, Punjab, Haryana, Tamil Nadu and Uttar khand declare State specific sugarcane prices called State Advised Prices (SAP) usually higher than the FRP.

Table-1.3: Statutory Minimum Price/Fair and Remunerative Price*(Rs./Quintal)*

Sugar season	SMP/FRP	Minimum Recovery %	Premium for every 0.1% increase
2002-03	69.50	8.50	0.82
2003-04	73.00	8.50	0.85
2004-05	74.50	8.50	0.88
2005-06	79.50	9.00	0.88
2006-07	80.25	9.00	0.90
2007-08	81.18	9.00	0.90
2008-09	81.18	9.00	0.90
2009-10*	107.76 (SMP)	9.50	1.13
Oct-2009	129.84	(FRP) 9.50	1.37
2010-11	139.12	(FRP) 9.50	1.46
2011-12	145.00 (FRP)	9.50	1.53
2012-13	170.00 (FRP)	9.50	1.79
2013-14	210.00 (FRP)	9.50	2.21
2014-15	220 (FRP)	9.50	2.32
2015-16	246(FRP)	9.50	2.62

Source: www. Indiansugar.com

* The Government of India on October 22 2009 amended the Sugarcane (Control) order 1966 vide SO2665 (E)/Ess.com/ Sugarcane introducing Fair & Remuneration Price (FRP) for sugarcane vice SMP for the year 2015-16.

Plight of Sugarcane Farmers

Sugarcane growers are facing unprecedented uncertainty because of mounting cane arrears due to sugar mills. The payment to sugarcane farmers by sugar mills though statutorily supported by various statues and enforced by the State Government get affected by the dynamics of domestic market price as well as international situation related to export possibilities.

Table-1.4: Season-Wise Cane Price Arrears Position(in crores)

Year	Position as on	Total Price Payable	Total Price Paid	Arrears	% of arrears on price payable
2008-09	15/09/2009	19691.6	19587.6	104.01	0.53
2009-10	15/09/2010	38512.8	38164.7	348.19	0.9
2010-11	15/09/2011	44685.9	43985.2	700.67	1.57
2011-12	15/09/2012	51571.3	50503.3	1067.98	2.07
2012-13	15/09/2013	59707.6	56248.5	3459.09	5.79
2013-14	15/09/2014	57868.3	50381.4	7486.91	12.94
2014-15	15/09/2015	61276.4	52394.2	8745.31	14.76
2015-2016	15/09/2016	63345.8	53476.1	8967.21	15.56

Source: Note of Directorate of Sugar, 2016, p.2-3

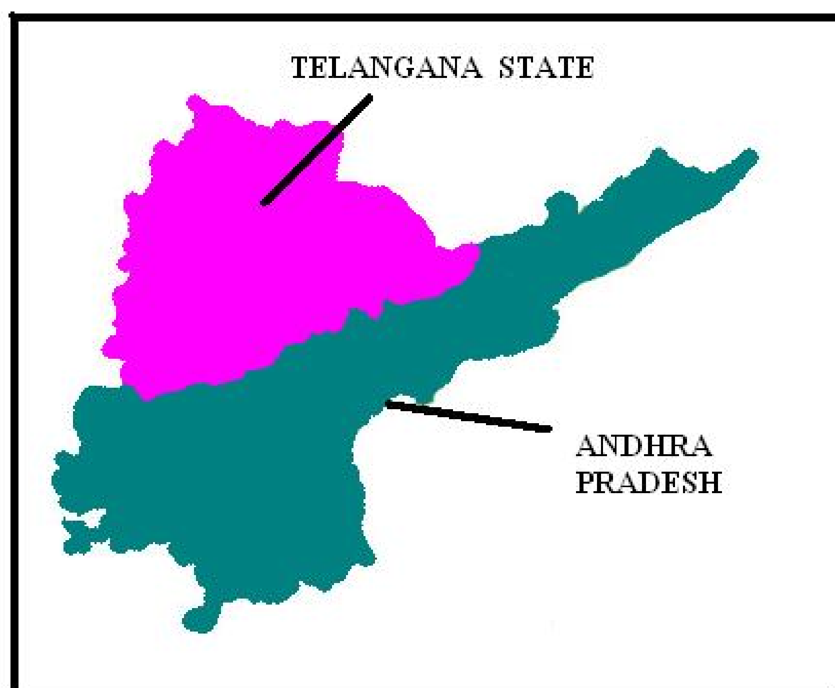
Challenges for sugar industry

Sugar is an agro based industry so the prices always fluctuate with monsoon. The low yield of sugarcane, short crushing season, and unsatisfactory location of industry in Uttar Pradesh and Bihar and inadequate supply of cane

create problems for sugar mills having low milling efficiency. Low Recovery of sugar from sugarcane also poses a problem for sugar industry. Further Indian sugar mills do not have sugar plantations of their own and hence do not have control over quantity and quality of sugarcane supplied by various cane growers. Another problem of sugar industry is that the by-products of sugar mills are not fully utilized like molasses and biogases. Levy sugar obligations causes huge financial burden on mills under which mills are bound to sell sugar for distribution under public distribution system at price determined by the Government which is way below the cost of production[7]. Arbitrary fixation of cane prices by the State Governments above the Fair Remunerative Price (FRP) fixed by the Centre has been adversely affecting the sugar mills. Due to all these reasons 189 mills were out of operation in 2013-14 sugar season while 166 mills were not operating in 2012-13.

1.2.3 Sugar industry in Andhra Pradesh

A brief of sugar industry in the state of Andhra Pradesh, sugar cane area and production, the performance scenario of sugar factories in the state, the relative position of the state of Andhra Pradesh (before bifurcation) in the production of sugar cane, the yield, the number of sugar factories, sugar production in India and different relevant dimensions of the industry are covered.



Andhra Pradesh is the fourth largest state in the Indian union with an area of 2, 75,281 sq.km. accounting for 8.4 per cent of the total geographical area of the country. The state of Andhra Pradesh is regarded as the ‘granary’ of the south. The state is predominantly agrarian. Within the agricultural sector, food crops predominate accounting for 73.3 per cent total value of agricultural output of the state. Non-food crops account for 20.96 per cent. The state of Andhra Pradesh can rightly be called ‘Rice bowl” of India with its resources, fertile fields and abundant cash crops. Agriculture provides the raw materials for industries like sugar, cloth, jute while industries produce machines and equipment to factories producing the requirements of the farmer like fertilizers, pesticides and tilling equipment as well as consumption goods.

Andhra Pradesh (AP) abounds in the number of private sector sugar companies in India along with Tamil Nadu and Karnataka. In the year 1933-34, vacuum process is adopted for sugar manufacturing in the state. Previously, the state government is planning to support cooperative sector as against other sectors. However, with passing time, a considerable change in the policy was noticed. Letters of Intent (L.O.I.) were given to the deserving entrepreneurs including 20 LOIs to the private sector companies. This gradually resulted in major benefits for the state government as well as for India as a whole. Today, the state of Andhra Pradesh sugar industry ranks 3rd in terms of recovery and 5th in terms of cane crushing. As per production capacity is concerned, Andhra Pradesh stands at the position 5th in India[4].

The state of Andhra Pradesh sugar industry can be classified into two parts such as organized sector including sugar mills and unorganized sector including manufacturers of gur (jaggery) and khandsari. The unorganized sector is often referred to as the rural industry. The rural industry plays major role in the level of production. As per the provisions of the state of Andhra Pradesh sugarcane Act, 1969, the crushing seasons in the state starts in the month of November and lasts up to 30th April of the next year.

During 2009-10, in the state of Andhra Pradesh, there are 35 sugar factories of which 8 are under the cooperative sector, 24 are under the private sector.3 are in joint sector. There are only 28 sugar factories in Andhra Pradesh during 1983-84 and during 2009-10, they stood at 34 in number. Andhra Pradesh occupies fifth place in

respect of sugar growing. This is one of the largest growers of sugarcane in the country. Sugar cane is cultivated in the districts of Sri kakulam, Visakhapatnam, East Godavari, West Godavari, Krishna, Nizamabad, Kadapa, Chittor and Guntur. The mill at Bodhan in Nizamabad district of Andhra Pradesh is biggest in Asia.

Andhra Pradesh and Telangana sugar industry comes out of the vicious cycle of shortage and surplus of sugarcane, lower sugarcane yield, lower sugar recovery, ever increasing production costs and mounting losses. This study aims to throw light on the present situation of the sugar industry in Andhra Pradesh and Telangana states, discussing the details of impact of working capital management on profitability of the sugar industry.

1.3 Details Of Sugar Companies selected for study in Andhra Pradesh And Telangana states

1.3.1 Sugar Companies selected for study in Andhra Pradesh

1. Andhra sugars Ltd.,

The Andhra Sugars Limited is an India-based company engaged in the manufacturing and sale of sugar, organic and inorganic chemicals at plants located at Tanuku, Kovvur, Taduvai, Saggonda and Bhimadole. The Company’s non-conventional wind power is being generated at one location in Andhra Pradesh and twelve locations in Tamil Nadu. The Company’s primary segment is the Chlor-Alkali Division, which is a Power intensive operation. The Company’s products include sugars, aspirin, sulphuric acid, alcohol and Alco chemicals, chloro alkali and super phosphate. The Company’s subsidiaries include Jocil Limited, the Andhra Farm Chemicals Corporation Limited and Hindustan Allied Chemicals Limited.

Sugar is manufactured at Sugar Unit-1 Tanuku, Sugar Unit-11 Taduvai and Sugar Unit-Ill Bhimadole. Molasses which is a by-product from the Sugar Plants is the raw material for company's distillery located at Tanuku. Industrial Alcohol and Ethanol are produced at Distillery. Industrial Alcohol is the raw material for Ethanol and other organic chemicals manufactured at the Chemical Plants at Tanuku. Biogases which is a residue at the Sugar Plants after extraction of juice is being used to fuel the Co-generation operation. Carbon dioxide which is a by-product of fermentation at the

Distillery is purified and used as one of the raw materials to produce Salicylic Acid which goes into the manufacture of Aspirin.

2. Empee sugars limited.

As a part of diversification Empee Group, in 1992 entered the Sugar business by establishing a Sugar Mill in Andhra Pradesh, which over a period of time became an integrated Sugar Complex with downstream products like Molasses, Rectified Spirit / Extra Neutral Alcohol, Biomass Fertilizers and Power. The Naidupet Mandal in Nellore District was the chosen site and the development it has brought to this once dry land is an incredible success story in itself. Farmers in the region now have a steady cash crop in sugarcane and a host of allied industries like molasses, alcohol, white sugar etc, have sprung up in and around the region.

The rich experience gained in developing and operating the Naidupet Sugar Complex paved the way for the Group to expand its Sugar Divisions. Thus borne, it is regarded as second integrated Sugar Complex at Ambasamudram, Tirunelveli District, in Tamil Nadu, which began operation in 2010. This Unit comprises of a 5000 TCD Sugar Mill, 50 MW Power Plant and 100 KLPD Ethanol Plan. Today the Group operates two Sugar Mills with a total crushing capacity of 8500 Tonnes per day. These Plants are located in the States of Andhra Pradesh and Tamil Nadu.

3. KCP sugars limited.,

sugar unit-1: K.C.P. Sugar and Industries Corporation Ltd (KSICL) has its first sugar factory at Vuyyuru, situated in Krishna District in Andhra Pradesh. The plant is located at 30 KM east of Vijayawada town on Vijayawada - Machilipatnam Highway. The plant was established with a crushing capacity of 600 TCD under cooperative sector in the year 1936. In the year 1941, when the cooperative venture failed the KCP Ltd, acquired the sugar factory from the co-operative sector as a going concern. Presently the plant can crush 7500 TCD after undergoing a serious of expansion and modernization. The plant produces high quality L30, M30 and S30 grades of sugar which are well accepted in Andhra and West Bengal markets and enjoys a premium for the past several decades.

Sugar Unit-2: KSICL has its Second sugar factory at Lakshmipuram, about 1.6 KM from challapalli, Machilipatnam Road, Krishna District, Andhra Pradesh. The plant was established with a crushing capacity of 800 TCD in the year 1957-1958. In the year 1987 The KCP Ltd took over the same. Presently the plant can crush 4000 TCD after undergoing a serious of expansion and modernization. The plant produces high quality L30,M30 and S30 grades of sugar which are well accepted in Andhra and West Bengal markets and enjoys a premium for the past several decades.

4. Jeypore sugars Ltd.,

The Jeypore Sugar Company (VVS SUGARS) Ltd. was incorporated as a public limited company on 29th July 1936 under the Indian Companies Act. 1913 and was the first company to be registered in the then newly formed province of Orissa with an initial capacity of 150 TCD and subsequently expanded to 450 TCD. The company diversified into various other activities like manufacture of Industrial Alcohol, Indian made foreign liquor and Ferro manganese. In the course of expansion of the company, a separate sugar unit was established at Nagaram in Guntur District A.P. in 1958. Due to non-availability of sugar cane the unit was shifted to Chagallu, West Godavari District, in A.P in 1961 with an installed capacity of 850 TCD in the year 1960-61 and having licensed capacity of 1250 TCD. At present the company's installed capacity and crushing capacity is at about 8500 TCD.

5. Nava Bharath sugars limited.,

The Company was diversified into agri-business, starting with sugarcane development and production of sugar and its downstream products. The Company's philosophy for the development of agri-business revolves around the following:

- Implementation of new and appropriate crop production technologies
- Development of farmers through contract farming
- Innovative measures for energy conservation and protection of environment in the processing units

The Company's Sugar Plant is one of the most energy efficient sugar plants, operating with an electrical energy consumption of 23 kWh per ton of cane crushed and 31% steam consumption on cane. Zero discharge of effluents achieved by installation of a reverse osmosis plant and spent wash evaporation plant and 100%

utilization of the product received from the evaporation plant for composting filter cake and producing organic manure. The company is diversified into the following plants:

Sugar Plant: Located at Samalkot, Andhra Pradesh with the Capacity of 4000 TCD

Distillery Plant : Located at Samalkot, Andhra Pradesh with Capacity of 20 KLPD

Ethanol Plant: Located at Samalkot, Andhra Pradesh with the Capacity of 30 KLPD

6. Parrys sugars limited.,

Parrys Sugar Industries Limited (PSIL) is a distinguished and rapidly expanding sugar producer in India. PSIL a subsidiary of EID Parry (India) Ltd, one of the fastest growing organizations in terms of sugar production in India. The industry is deeply committed to a larger vision of our social responsibility looking after the needs and quality of life of the farmers and local communities. Through the effective farmer partnership model the company provides assistance in farming practices and undertake various economic initiatives for the benefit of the local communities.

7. Sagar sugars & allied products ltd.,

Sagar Sugars & Allied Products Ltd., is a private limited Firm. It has already made a spectacular impression on the world of trade with the range of products and cornered a major share of market and that has helped immensely to establish a niche for its products in the sugar segment.

8. Prudential sugar corporation limited.,

Prudential Sugar Corporation Limited set up its first modern integrated Sugar Plant in the year 1994 to manufacture white Crystal Sugar. The plant is located near Village Nindra in Andhra Pradesh (India) with a capacity of 2500 TCD. It is a fully integrated Sugar Complex also with a facility for Power Co-generation. The location of the plant has advantage of two monsoons, the South West and the North East, which bring in sufficient rain to give a healthy crop over an area of 30000 Acres.

It is one of the largest producers & exporters of sugar in the country. Sugar manufactured by the company is recognized as a premium quality product having global reach & acceptance. The white plantation white sugar is produced at Nindra in Andhra Pradesh (India) by Double sulphitation followed by syrup clarification by

phosphor floatation process. The plantation white sugar thus produced not only meets the specifications of ISS standards of Government of India but also surpasses in many of quality aspects.

9. Suddalagunta sugars limited.,

Suddalagunta Sugars Limited is a Public incorporated on 12 September 1994. It is classified as Non-Govt. Company and is registered at Registrar of Companies, Hyderabad. This group entered the Sugar business by establishing a Sugar Mill in Andhra Pradesh, which over a period of time became an integrated Sugar Complex with downstream products like Molasses, Rectified Spirit / Extra Neutral Alcohol, Biomass Fertilizers and Power. Further company diverted into many plants through effective partnership motives such as introducing technical ways in extracting and formulating with the same basis in the streams of molasses, spirit and beverages.

1.3.2 Sugar Companies selected for study in Telangana

1. Delta sugars limited.,

The Delta sugars got registered at ROC, Hyderabad on 21st August, 2001 year. It has got limited company by shares and an Indian, non-government. The delta sugars have 3 active directors/ partners. The active directors are Gokaraju Rama Raju, Ganga raju Gokaraju, Ranga Raju Gokaraju.

2. Gayathri Sugars Ltd.,

It is a public limited company listed on Bombay Stock Exchange (BSE) is a part of the 50 year old highly diversified Gayatri Group. It is in the field of Manufacturing across integrated fields such as Sugar, Distillery, and Power. Along with its Registered and Corporate Office in Hyderabad has two state-of-the-art sugarcane based integrated units –Kamareddy Unit- situated at Adloor Yellareddy Village, Sadasivanagar Mandal, Nizamabad District

3. G.M.R vasavi industries ltd.,

GMR Industries Limited is the agri-business division of GMR Group. It currently owns and operates three integrated sugar plants in sugarcane growing belts

of Karnataka and Andhra Pradesh with combined a installed crushing capacity of 11,000 TCD, 46 MW of co-generation and 95 KLPD of distillery. The company also holds a license to set up and operate an integrated sugar complex of 3,500 TCD sugar mill at Raibagh in Karnataka. The company also owns land and license to set up another plant in Andhra Pradesh.GMR Industries, listed on BSE and NSE.

4. Kakatiya sugars ltd.,

The industry is situated at a Peruvancha Village,Kalluru Mandal at Khammam Dist., Andhra Pradesh. It started with a plant to manufacture and then diversified with The Sugar Division crushes more than 4.00 lakh MT of sugar cane on an average per year. The cement plant of the Company is located in Nalgonda District of Andhra Pradesh, whereas the sugar and power plants are located in Khammam District.

5. Madhucon sugars and power industries ltd.,

Madhucon Sugar and Power Industries Limited (MSPIL) was a cooperative sector entity since 1983 at Rajeswarapuram in Telangana State. It was formally taken over by Madhucon Group in the year 2002. At the time of acquisition, Realizing the high potential for growth of the sugar factory, the crushing capacity was enhanced to 3500 TCD in the year 2007 from initial 1250 TCD capacity. In addition to this a 24.2 MW co-generation power plant was also added to use the by-product Biogases more effectively and efficiently. Subsequently a 65 KLPD Distillery for producing Ethanol was also added to make use of the byproduct generated i.e., Molasses considering the benefits that accrue due to policy of Government mandating 5% blending of Ethanol with Petrol.

6. Nizam Deccan Sugars Limited., (NDSL)

Nizam Sugar Factory also known as Nizam Deccan Sugars Limited (NDSL) is a sugar factory situated in Bodhan town of Nizamabad district, Telangana, India. The factory is located 25 kilometers from district headquarters, Nizamabad and is known for being the largest sugar factory in Asia. Since recent years the factory has been functioning seasonally.

Nizam Sugar Factory was established in 1937 during the time of the last Nizam of Hyderabad State, Mir Osman Ali Khan. The factory was a major employer

during the Nizam period. As of 2015, the state government owns 49 per cent of the factory, with the remaining controlling stake behind held by Delta Sugars.

7. NSL krishnaveni sugars ltd.,

It has commenced its operations at Mahaboobnagar district. Since the Karnataka and Telangana (Mahaboobnagar) sugar business verticals are well established plants will help them to expand into Andhra Pradesh significantly besides increasing their market share in rest of states. The sugar industry is expecting growth in future and its turnover business to touch higher level. The integrated sugar, fuel grade ethanol and co-generation power has been set up at kothakota mandal with an investment of Rs. 350 crores.

8. Shivashakti Sugars Ltd.,

Shiva Shakti Sugar Mills (India) Private Limited started in 1999 i.e., company is 16 year old. Average age for main line of business (Manufacture of 'khandsari' sugar from sugar cane) is 22 years i.e., this company is 6 year younger than its main industry Average age for parent line of business (Manufacture of sugar [manufacture of glucose and other sugars made from starches. This company is 2 year older than its top level industry Out of 114 companies, Shiva Shakti Sugar Mills (india) Private Limited is 36th oldest company which is primarily involved in Manufacture of 'khandsari' sugar from sugar cane in India Out of 3 companies, Shiva Shakti Sugar Mills (india) Private Limited is oldest company which is primarily involved in Manufacture of 'khandsari' sugar from sugar cane in Telangana

9. Trident sugars ltd.,

In 2006, Rajshree Sugars &Chemicals Limited acquired Trident Sugars limited – a 2500 TCD sugar mill at Zaheerabad, Medak District in Andhra Pradesh. During the year 2011-12, the factory has crushed 4.07 lakh tons of sugarcane as against 3.97 lakh tons crushed in the previous year. With the expected normal monsoon this year, the sugarcane crushing for the year 2012-13 is expected to be sustained at last year's level. As part of the expansion program, the company plans to enhance the capacity to 3500 TCD and the work is in progress.

2. REVIEW OF LITERATURE

2.1 Introduction

Researchers have made many studies on working capital management and effect of working capital component on profitability of firm with different views, with different perspectives under different environments. Some of them which are relevant to the present study are mentioned below:

2.2 Sugar industry and Working capital (1951-1985)

P. N. Devekar(1951)[18]: The paper studied on the sugar industry in Bombay division explained development of sugar industries and their problems. The study points out the necessity and importance of sugar co-operative in the Indian economy.

Appavadhanulu(1971)[8]: The paper identified that there is lack of attention being given to investment in working capital, analyzed working capital management by examining the impact of method of production on investment in working capital. Finally, it was found that there is no significant relationship between method of production and working capital.

Chakraborty (1973)[12]: The study stated that working capital is the fund to pay all the operating expenses of a business, emphasized that return on capital employed, would be adversely affected by excessive working capital. It was found that required cash working capital by applying OC Concept and compared it with cash from balance sheet data to find out the adequacy of working capital in Union Carbide Ltd. and Madura Mills Co. Ltd., for 1970-71.

Misra(1975)[51]: The paper deeply examined various problems involved in management of working capital and analyzed different financial ratios and responses to a questionnaire. The study found that there is overstocking of inventory, very week debtor’s receivables turnover and more cash than warranted by operational requirements and concluded that there is total mismanagement of working capital in public sector undertakings.

Lambrix and Singhvi (1979)[47]: The paper applied the working capital cycle approach to the management of working capital, and advised that the investment in working capital could be optimized and cash flows could be increased by decreasing

the time period of the physical flow of cash from receipt of raw material to the recovery of fund of finished goods, i.e. inventory management, and by improving the terms on which firm sells goods as well as receipt of cash.

Smith (1980)[74]: The paper emphasized on the implications of Working Capital Management on the value, risk, and profitability of firms. It was finally stated in the findings that operating cycle, leverage, return on assets, are important internal determinants which determines the working capital requirements significantly.

RBI (1980)[63]: A Study Group studied the problems of sickness in sugar industry erosion of profit of sugar mills is mainly due to mechanical obsolescence has been concluded by various committee constituted after 1980 recommendation of these committee Modernization and rehabilitation are considered as the way to reconstruct the sugar industry.

Shah and Shah (1980)[65]: The paper pointed out that the cost of production of sugar factory depends primary on the raw materials, the sugar recovery percentage and the duration of crushing season. It was suggested that the cost of sugar production can be brought down by utilizing the processing unit for a maximum period, the proper checking of the machinery of its day to day work, the cost of extra fuel, lubricants, spare parts, consumption of chemicals, and sugar content in final molasses would be reduced, if the steam balance and machinery maintained, proper plans and proper watch in clarification and boiling house stations.

Murali (1980)[54]: The paper suggested that break-even analysis is an important aspect for proper planning of sugar industry and controlling its profits. It helps in determining:

1. Minimum level of operation required to avoid losses,
2. Volume of sale to be undertaken to achieve a profit target,
3. The effect of change in price, change in fixed costs, change in variable cost and change in volume of sales on profit and
4. Assessment of the proportion and sales mix to maximize profits.

Manohar Rao (1980)[49]: The paper had rightly pointed out that the current international prices of sugar and molasses, every sugar producing country has a strong reason to convert sugarcane into sugar and molasses to earn foreign exchange

required for keeping up the balance of trade. It may be even economical to import crude out of the foreign exchange earned by export of sugar and molasses. It was concluded that it was more economical to convert sugarcane into sugar and molasses and to use molasses as raw material for production of ethyl alcohol.

Singh (1980)[71]: The paper reported that the by-products of sugar factories were neglected continuously and income from by-products was lost. It was suggested that if the by-products of sugar factories (i.e. biogases, molasses, filter mud, boiler ashes and sugarcane tops) were put to right use, they could generate a new hope for the employees.

Tube (1980)[82]: The study on “Impact of Sugar Factories on the Rural Economy – A Case Study” has studied in detail the impact of Sanjivani Cooperative Sugar Factory in Ahmed Nagar district on agriculture, agriculturists, on the lives of agriculture labour, economic conditions of factory workers and spread effects of the sugar factory and overall economic change in rural area. It was concluded that sugarcane being the cash crop, area under sugarcane has increased, the area under irrigation has increased and likewise the change in the cropping pattern and methods of farming have changed.

Kasbekar (1981)[40]: The paper observed that the sugar economy has been passing through phases of surplus and deficit in production and consumption leading wide fluctuations in the prices of sugar and that it has affected the major indicators of sugar industry and sugar prices.

Sharma (1981)[67]: The paper stated that Co-operative sugar factories help farmers for getting more yields by following ways:

1. Distribution of good quality cane which is disease free and improved varieties for planting.
2. Land preparation to provide agricultural implements.
3. Irrigation facilities.
4. Technical knowledge of crop rotation, inter cropping by different trails and demonstration.

Hapse (1982)[28]: The paper reported that the factors like inadequate supply of sugarcane due to lack of sugarcane development program, lack of irrigation facilities,

lack of regulation in sugarcane supply due to inadequate control leading to cane scramble, inadequate own funds, excess burden of interest on temporary or short loan, unrealistic sugar and sugarcane prices, lack of efficient management, lack of expertise in the board of directors, competitions of gur and khandsari units and lack of long-term sugar policy are the root causes for the sickness of the cooperative sugar factories in Maharashtra

Kohak (1983)[43]: The paper studied the socio-economic effects of a cooperative sugar factory on agriculture, cultivators and on agricultural laborers and the impact of sugar factory on the development of infrastructure, social services like education, medical facilities, capital formation, and employment generation in the area of operation of sugar factory. It was concluded that because of the establishment of the sugar factory, the tendency of depending solely on the cash crop like sugarcane has been increasing among the farmers, which may ultimately have adverse effect on other farmers.

Agarwal(1983)[2]: The study considered various techniques of ratio analysis, and studied working capital management by taking sample of 34 large manufacturing and trading public limited companies in ten industries in private sector. The study stated that upward trend in cash to current assets ratio.

Kasar and Tilekar's (1984)[39]: The study indicated that the sugar industry has significant impact on the employment of seasonal migrants in Maharashtra. The share of sugar factory employment was to the extent of 45.51 and 75 percent in the total employment of an average male, female and bullock pair of the migrant household. As regards the income, it is noted that the sugar industry, on an average contributes 57 percent of the gross income of migrant household.

Shulman and Cox(1985)[69]: The study measured the Working Capital Management of a firm using different techniques of working capital requirements and concluded that debt ratio along with operating cash flow are significant determinants of working capital requirement, whereas company growth, company performance, firm size, business cycle seem inconsistent in determining Working Capital Management of Taiwanese firms.

2.3 Working capital aspects in different sectors (1986-1991)

Kamta Prasad Singh(1986)[38]: The paper identified and analyzed various aspects of working capital management in fertilizer industry in India during the period 1978-79 to 1882-83. Sample included public sector unit Fertilizer Corporation of India Ltd.(FCI) and its daughter units namely Hindustan Fertilizers Corporation Ltd., the National Fertilizer Ltd., Rashtriya Chemicals and Fertilizers Ltd., and comparing their working capital management .

Kharche (1987)[41]: The paper on Cooperative Sugar Factories in Marathwada discussed the licensing policy and of financial structure of cooperative sugar factories. Finally, the paper has analyzed the causes of sickness of sugar factories and has made some recommendations to overcome the problems of sickness.

Kuchhadiya and Shiyani and Parmer (1988)[44]: The paper observed an increasing trend in all the variables of sugarcane and sugar production in Gujarat and India as a whole. Furthermore, it was revealed that the variability of production was more than the variability in area and yield of sugarcane in Gujarat as well as in India and arrived at the conclusion that the cultivation of sugarcane crop in the Gujarat state was profitable to the farmers.

Hinge, Pawar and Narwadkar (1989)[32]: The paper showed that the installed capacity was over utilized in the healthy class while in the remaining classes, it was under utilized due to inadequate cane supply which in turn influenced per unit cost of production. The net loss of 100 tonnes of installed capacity was observed to be largely influenced by the magnitude of return from sugar production. In spite of the low per unit cost of production of sugar, the overhead costs, were relatively very high in the case of sick sugar factories.

Harbir Singh (1990)[31]: The study on Management of working capital of Modi Sugar Mills, has stated that the financial health of a company can be improved, if stringent control is excised on raw materials, stores and spares, and also by reducing the unprofitable investment blocked in current assets, the cash flow can be regulated, the companies prepare weekly cash flow statement and cash budget on a regular basis.

Chandrakant Janardhana Joshi (1991)[13]: The paper analyzed the financial performance of sugar Factories in Kolhapur District of Maharashtra. The objectives

were to measure the liquidity, solvency, efficiency, working capacity, profitability and socio-economic developments. The study revealed that the financial performance depends on internal and external factors; The study concluded with remarks that the units should enhance their equity capital; introduce cane development program, man power planning and plant modernization.

2.4 Financial performance of sugar mills and sugar industry(2007-2010)

Singh (2007)[72]: The study made an attempt to assess the performance of the sugar mills of Uttar Pradesh. The study found that during the period, the average overall technical efficiency (OTE) in the sugar mills of the state had been 93 per cent. This implied that an average mill can make radial reduction in all its cost by seven per cent without detriment to its output levels. It had also been observed that the mills with bigger plant size attained relatively higher efficiency scores.

Andrew Higgins, Peter Thorburn, Ainsley Archer, Emma Jakku(2007)[6]: The paper highlighted the future opportunities in value chain research to achieve more profitable and sustainable sugar industries in different countries by:

a) Conducting an extensive review of value chain research in sugar;
b) Assessing the change resulting from chain research using case studies in the Australian and South African sugar industries; highlighting challenges to value chain research; and
c) Considering opportunities and methodologies used in other industries.

The paper shows that value chain opportunities require more than just a technical solution, and need collective participation from across the chain, and usually evolutionary change management.

Petersen, Bogetoft, Boye, and Nielsen (2007)[60]: The paper examined whether the Danish sugar industry can maintain production and profit levels by reallocating production from less to more efficient farmers. The analysis shows that the present allocation is far from efficient.

Thiyagu (2008)[81]: The study on “Determinants the Profitability Analysis of Private Sector Sugar Industries in India”. The main objectives are determining the profitability of selected industry and analysis the financial performance and suggested

that the companies shall resort to borrowings that total borrowings always less than that of the share capital and reserves and surplus.

Tamizhselvan (2008)[77]: The paper studied the Profitability Analysis of South Indian Private Sector Sugar Industries" where the main objective of the study is, to analyse the quantum of profit among Industries and trend analysis of profitability, effective utilization of fixed assets and current assets.

David Kelch, Johannes Umstaetteri and Aziz Elbehri (2008)[17]: The study on The European Union's sugar policy, in place since 1968, underwent its first major reform in 2005 in response to mounting and unsustainable imbalances in supply and demand. A model based analysis suggests that the reforms by themselves are unlikely to induce price adjustments sufficient to reduce overproduction unless quotas and/or high tariffs are reduced.

Siddique et al. (2009)[70]: The paper focused on the India two sugar mills which were in the custody of Pakistan. The papers used the liquidity as an independent variable and check its impact on profitability in sugar sector of Pakistan

Anuradha Rajendran (2009)[7]: The study on "Performance Appraisal of Private Sector Sugar Companies in Tamil Nadu" have the objectives like to access the production and sales performance, to analyze the financial performance and profitability analysis of select sugar mills. The correlation analysis revealed a positive correlation between return on total assets and inventory turnover ratio during the study period.

Dheenadhayalan and Devianbarasi (2009)[21]: The study on "Issues relating Financial Performance of NPKRR Cooperative Sugar Mill Ltd" where the prime objective is to identify the relationship between liquidity and profitability of sugar mills. A moderate lengthy period was deemed necessary to arrive at meaningful and purposeful inferences.

Navneetha Kannan (2009)[57]: The study on "Issues relating to the Financial Performance of MRK Cooperative Sugar Mill Ltd", Sethiyathope, Cuddulore District where the prime objective of study is to identify and measure financial status of selected sugar mill. The paper analyzed the financial performance using ratio analysis and Altman`s Z score.

Jayantilal B, Patel (2009)[36]: The study focused on sugarcane price, sugar price, cane development activities, co-product development, decontrol of the sugar Industry, Co-operative sector of sugar Industry, National Federation of Sugar Factories and suggested that recommendations of expert group on sugar industry.

Lakshmipathi Raju.M and Suryanarayana Raju (2010)[45]: The paper studied the sugar production and consumption in leading countries in the world, sugar cane production, sugar production, the number of sugar mills operating in cooperative sector and private sector, sugar recovery in India. The study highlights the reasons for high ups and downs in cane production, sugar production, the number of sugar mills that carried sugar production and made suggestions for stability in production of cane and sugar.

Navneetha Kannan and Sakthivel Murugan (2010)[58]: The paper studied the main objectives are to analyze Indian sugar industries from a global perspective and to evaluate future dimension of Indian sugar industry. It can be observed that there is a growth trend in the sugar production. During the period 2010, it can be seen that per capital consumption has gone up to 20 kgs. India’s total sugar exports also gone up (3.298 million tons) and this is a healthy condition for the country.

Thirupathy (2010)[80]: The main objectives of the study are, to examine long-term and short-term financial solvency, profitability and growth performance, to measure the impact of utilization of assets on the profitability of sugar Industry in Tamil Nadu. The study concludes that low sugar recovery percentage was most serious problem faced by sugar industries.

2.5 liquidity, financial viability, working capital and long term solvency in sugar sector(2010-2015)

Amit Kumar Dwivedi (2010)[5]: The study found that the manufacturers are producing majorly for distilleries and local liquor producers, not for the food plate or common man’s consumption. The study examines the cost-return analysis, profitability and operational efficiency of Gur manufacturing units in study area. The study revealed that units of medium and large sizes were able to cover their operating expenses with significant level of profit but small size units were earning a marginal profit.

Haq et al. (2011)[29]: The paper defined the liquidity, cash, net working to improve profitability in the sugar sector. Networking capital shows the strength of the business and its liquidity position. It means if more the working capital more the liquidity of the firm.

Ali Muhammed Khusik (2011)[3]: The study was conducted at technology transfer Institute, Tandojam, Pakistan to analyze sugar industry competitiveness in Pakistan. The results show that in sindh, 50 percent sugar industry falls in large size group. In Punjab a major portion of sugar industry (70%) also falls in large size group, while sugar industry of NWFP falls in small size group. In Punjab and NWFP, 76 and 70 percent small size growers having less than 6 hectares, Whereas, in Sindh 49 percent are small growers.

Amarender Reddy (2011)[4]: The paper studied Sugar and cane prices in India which are highly regulated, as a result free market prices showing rising trend with high volatility. A formula based Fair and Remunerative Price (FRP) is suggested for cane to take into account both cost of production and international price realities along with complete freeing of sugar prices.

Martina, Noronha and Dilipsinh Thakor (2012)[50]: The study on The Indian Sugar Industry is marked by co-existence of different ownership and management structures. This study attempts to find the financial viability of sugar factories located in South Gujarat in India.

Yashwant and Neeraj Kumar (2012)[92]: The paper made an attempt to study the degree of financial health of the selected units with the help of Edward Altman's Z-score model and the comparison of wealth and health among the selected units with the help of statistical tools i.e. Mean, Standard Deviation and Coefficient of Variation.

Uma Maheswari and Ramachanadra Reddy (2012)[84]: The paper on "Working Capital Management in Sri Venkateswara Co-operative Sugar Factory Limited and Sagar Sugars & Allied Products Limited in Chittoor district of Andhra Pradesh. The study found the industry has failed to retain more profits, consequently been forced to define more on external sources.

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Vijaya B, Sangashetty Kanteppa Shetkar(2013)[81]: The basic objective of the paper is to know what is the best way the cost of sugar production per unit can be controlled and reduced. To find out present cost management loop holes in sugar industry and give suitable suggestion to overcome those hurdles.

N.N. Nadoni1, G.S. Ananth, P.S. Dhananjaya Swamyand Manjunath S. Kerur(2013)[55]: The paper was aimed at studying the relative economics of private and cooperative sugar factories in Belgaum district of Karnataka State. The results revealed that the cooperative sugar factory performed better than private sugar factory based on the overall averages such as solvency ratios, turnover ratios and financial strength ratios. Whereas the overall averages of liquidity ratios viz. current ratio, acid ratio and liquid assets to total assets ratio except inventory ratio showed that Private sugar factory performed better than Cooperative sugar factory.

Devdatta Tare, Fakhruddin Sunelwala, Akash Agrawal (2014)[19]: The paper made an attempt to study Indian sugar industry and to analyze Profitability of Selected Sugar Companies Based on Their Margin on Sales.

Subramanian. G, Visvanathan. K (2014)[76]: The study analyzed the performance of sugar industry in Tamil Nadu through financial analysis techniques like ratio analysis. The study was concluded that the financial performance of the sugar industry had been moderate.

Ashok Kumar M(2015)[9]: The study is done in order to assess the financial stability, profitability, long term solvency, efficiency in asset utilization of the five major sugar companies operating in the state of Tamil Nadu. the study has made an attempt to find that whether these white elephants are healthy and financially strong enough to run on its own leg, the researcher had made an attempt to critically analyze the financial strengths. It is found that on an average all the units considered for the study are at average to the industry standards and to the rule of thumb.

2.6 Literature review on relationship of working capital with profitability and sugar sector (1995-2015)

Vijayakumar and Venkatachalam (1995)[85]: The study was carried on Working Capital and Profitability taking thirteen firms from sugar industry. The study showed that inventory turnover and receivable turnover had positive correlation with the

profitability and liquid ratio where as cash turnover had negative correlation with the profitability.

Lamberson (1995)[46]: The paper examined variety of aspects like current assets to total assets ratio, inventory to total assets ratio, current ratios for measuring working capital requirement and analyzed different aspects of managing the working capital ,analyzed how small firms will reacts to changes in economic activities by changing their working capital requirements and level of current assets and liabilities. Inversely to the expectations, the study concluded that there is a very least significant relationship between change in working capital and changes in economic conditions.

Jose (1996)[37]: The study concluded that there is significant negative relationship between profitability and Cash Conversion Cycle by examining the relationship between aggressive working capital management and profitability of the US firms using Cash Conversion Cycle (CCC) as a measure of working capital management, where a shorter CCC represents the aggressiveness of working capital management and also indicating that more aggressive working capital management is associated with higher profitability.

Vijayakumar (1996)[86]: The paper revealed that the growth rate of sales, leverage, current ratio, operating expenses to sales and vertical integration are the important variables which determine the profitability of companies in the sugar industry.

Mahadev Powar(1997)[48]: The paper analyzed the raising and utilization of finance of five co-operative sugar factories at the micro and the macro level. The findings of the research were, the use of chemical fertilizer made much harm to the soil; there was a need of innovation of modern technology and plant modernization; and there was a need of man power policy, accounting producers and inventory control.

Weinraub and Visscher (1998)[91]: The study considered some important issues like aggressive and conservative working capital management policies and implemented on quarterly data from 1984-93 of the US firms and stated that there is significant, distinctive and different working capital management policies. The study demonstrated the there is high and significant negative correlation between industry assets and liability policies and noted that when relatively aggressive working capital

asset policies are followed, they are balanced by relatively conservative working capital financial policies.

Shin and Soenen (1998)[68]: The paper highlighted that efficient working capital management was very important for creating the value for shareholders. The relationship between the length of Net Trading Cycle, Corporate profitability and risk adjusted stock return was examined using correlation and regression analysis, by industry and capital intensity and found a strong negative relationship between the length of the firm's net trading cycle and its profitability.

Chandrasekaran (1999)[14]: The study was carried out Financial Performance of Indian Sugar Industry in which various ratios like profitability ratios, liquidity ratios, leverage ratios and turn over ratios were calculated. It was found that financial performance of the sugar industry had been moderate to poor except during 1993-94. The study concluded that tough cycle of low production, high price realization followed by higher production and low price realization leading to delay in payments would affect the company's performance.

Srinivasan (2001)[75]: The study suggested that the opportunity for using by-product molasses, which will be available in increasing quantities, for producing industrial and potable alcohol, alcohol-based chemicals and ethanol should be fully utilized. Any surplus power can be sold to Tamil Nadu Electricity Board Grids at price advantages to both parties. These measures can help in reducing all manufacturing costs noticeably.

Jadhav (2001)[35]: It has been found from the study that the cost reduction is a continuous process of follow up. It needs evaluation, redesigning and reevaluation. To achieve cost reduction, it is necessary to follow the below mentioned steps:

1. Establishing our own standards
2. Measuring performance against these standards and
3. Correcting deviation from standards.

Pokharkar, Kasar and Shinde (2001)[61]: The basic objective of the study has been to examine low productivity of sugarcane and profitability for different planting types in different recovery zones in Maharashtra. It has been concluded that there is a need to popularize the improved crop production technology among the sugarcane growers. It

will ensure reduction in a cost of cultivation on one hand and maintain the productivity of sugarcane.

Samar K. Datta (2002)[64]: The paper computed and presented the growth rates of production and yield of sugarcane in his study, based on the source from Ministry of Agriculture, Government of India: Agriculture statistics at a glance, 2001. It has been found that the compound growth rate of production of sugarcane was only 2.70 and yield of sugarcane was only 0.82 during 1991-92 to 2000-01

Bhattachrayya (2002)[10]: The study discussed the negative export growth of sugar and molasses during 1995-96 to 1999-2000. It showed that it was 151.62 in 1995-96, 303.89 in 1996-97, 68.68 in 1997-98, 5.81 in 1998-99 and 8.74 in 1999-2000. However, during 1999-2000, more than 70 percent of India's agricultural exports have shown positive growth trend, while only 27 percent of agro exports (including sugar and molasses), have shown a negative trend.

Rajesh Kumar and Misra (2002)[62]: The study made an effort to delineate sugar recovery zones in the country for the efficiency planning and development of Sugar Industry. The objectives made attempt to identify the different sugar recovery zones into emphasis that the crop area, quality and quantity of water, infrastructure, cane processing technology, sugarcane supply management, etc., are quite different in different areas of the country and require appropriate approaches.

Vijayakumar (2002)[88]: The paper was developed into the various determinants of profitability viz., growth rate of sales, vertical integration and leverage. It was noted that efficiency in inventory management and current assets are important to improve the profitability.

Anupam sharma (2002)[67]: The paper studied the assessment of corporate liquidity -a Discriminate Analysis Approach of 28 firms in the sugar industry operating in Tamil Nadu. The study concluded that the cooperative sector classified as poor risk in all the selected years. The study revealed that the overall liquidity position of the industry was satisfactory.

Sirohi (2003)[73]: The paper suggested that the sugar mills and their associations with the assistance of the Ministry of Consumer Affairs, Public Distribution System and

the Sugar Directorate, should take a long term approach to overcome the negative financial scenario of the sugar mills. The suggested approaches are:

1. Maintenance of 3-4 months sugar consumption as carry over for next season,
2. Reduction in cost of production,
3. Production of better quality of sugar,
4. Maximum saving of fuel,
5. Assessment of benefits of producing rich sugar molasses considering mandatory mixing of 5 percent anhydrous alcohol in petrol and
6. Production of value added products.

Dangat Nilesu (2003)[16]: The paper on "Co-operative Sugar Factories in Maharashtra" analyzed functioning of sugar industry in the state. The soil and climate conditions of Maharashtra are favorable for the cultivation of sugar cane. A sugar factory with a daily crushing capacity of 2500 tonnes provide permanent employment to 416 persons and seasonal employment to 653 persons.

Deloof (2003)[18]: The paper suggested that the Belgian firms through decreasing their number of days of account receivables and reducing the days of inventory outstanding can increase their profitability by analyzing a sample of large Belgian firms for the period 1992-1996.

Ghosh and Maji (2004)[25]: The paper analyzed the efficiency of managing the working capital of the Indian cement companies. They have determined utilization index, three index values-performance index, and overall efficiency index in order to measure the efficiency of managing working capital instead of using some common working capital management ratios.

Eljellyi(2004)[22]: The study identified that there is significant negative relationship between the profitability of firm and its level of liquidity as measured by current ratio. This relationship is highly applicable for the firms with high current ratios and long cash conversion cycles.

Aarathi Kirshnan (2004)[1]: The paper pointed out that the anticipated tightening of supplies has already set-off an upward spiral in sugar prices, which have firmed up by about 20 percent over the past year. In the festival demand for sugar, which peaks in

the September, January period, could keep prices high, especially as supplies from the next crushing season will trickle in only from November/December.

Mohan (2004)[52]: The study on "Profitability of Sugar Industry" has made an evaluation of the profitability of the sugar mills in the Thanjavur district. The study analysed the operational of the sugar mills, through operating ratios there by judging the effectiveness in using the pool of funds. The study identified the long term funds entrusted to a concern by companies and owners through return on capital employed. On concluding the study indicated that the private mill was moderate where as the public and co-operative mills did not achieve the expected performance.

Falope and Ajilore (2005): The paper considered the sample of 50 Nigerian quoted non-financial firms by using the data econometrics in a pooled regression, where time-series and cross-sectional observations were combined and estimated. It was concluded that there is a significant negative relationship between the average collection period, average payment period, inventory turnover period, cash conversion cycle with that of net operating profitability.

Basavraj and Benni (2005)[11]: The paper studied the physical and financial performance of twelve co-operative sugar factories with the help of ratio Analysis and Multivariate econometric technique method. The study revealed that these performance indicators influenced the total performance of sugar co-operative factories and concluded with a remark that in the total sugar production cost, cane conversion cost was greater than the cane cost.

Kim (2005)[42]: The paper stated that firms with lower liquidity refer to negative profitability in this way the importance of liquidity in profitability in sugar sector is most important because good liquidity leads to better profit are higher profit in sugar sector industries show the good performance of these industries.

Farooqi et al. (2010)[23]: The paper analyzed the relationship between liquidity and profitability and that it is necessary to investigate for every organization even they perform their daily operations. The result shows that there is significant impact of liquid ratio on profitability.

Gopinathan Radhika, Ramachandran Azhagaiah(2012)[26]: In this paper, authors made attempt to examine the impact of working capital management on profitability

by using the liquidity ratios, and turnover ratios. They have applied Correlation and regression models determine the relationship and estimate the association between the selected variables. The regression model shows that the ratios like Current Ratio and Inventory Turnover Ratio have highly significant positive coefficient with profitability while Quick Ratio has significant negative coefficient with profitability.

Chatterjee(2012)[15] This research has analysed the impact of working capital on the profitability for a sample of 100 Indian companies listed in the Bombay Stock Exchange for a period of 2 years from 2010-2011. The various components for measuring the working capital management include the Receivable days, Inventory turnover days, Payable days, Cash conversion cycle, Current ratio and Quick ratio on the Net operating profitability of the Indian companies. The controlled variables like; Fixed assets on total assets, the Debt ratio and the size of the firm (measured in terms of natural logarithm of sales) have also been used for measuring of the working capital management. Descriptive Statistics, Pearson's Correlation, Regression Analysis are used for analyzing this research. All these tests are used so as to correlate the theories contributed by the literature by several authors with the statistical results.

Umarani R. , Nithya G(2013)[83]The objective of the study is to analyze whether the overall profitability of the selected companies in the Sugar industry depends on their age, size, and region to which the company belongs based on their margin on sales. From the analysis, it was found that the southern region companies had a higher profitability than the northern region companies. It is suggested that to increase their profitability, the companies need to effectively monitor and control their expenses and effectively use their by-products.

Habiba (2013)[27] The paper analyzed the liquidity impact on the profitability of sugar industry in Pakistan by using the account receivable, cash as a liquidity variable and sees the impact on sugar industry profitability.

Senthilmani Thuvarakan(2013) The dependent variable, profitability is measured using gross operating income. The independent variables are receivable days. Payable days, inventory days, cash conversion cycle, debt, and size of the firm. Pearson's correlation and regression analysis to explore the relationship between the profitability and the working capital components. The results show that there is no significant relationship between the working capital components and profitability.

There is a negative relationship between gearing and profitability in manufacturing firms.

Mohanasundaram P(2014)[52]: The paper has made an attempt to analyze the profitability of the five sugar companies based on total assets among 24 listed sugar companies in NSE Listings. The results of analysis revealed that the overall profitability of Shree Renuka Sugars Ltd, Balrampur Chini Mills Ltd and Bannari Amman Sugars Ltd is satisfactory and the overall profitability of Sakthi Sugars Ltd and Dhampur Sugars Ltd is not satisfactory during the study period.

Chemis Kiptoo Philip(2015): The purpose of the study is to examine the effect of working capital management variables including the Average collection period, Inventory turnover in days, Average payment period, Cash conversion cycle and Current ratio on the Net operating profitability of Sugar Manufacturing firms in Kenya. It was found that there is a significant negative relationship between variables of the working capital management and profitability. The study suggests that managers can create value for their shareholders by increasing their inventories to reasonable levels and also reducing accounts receivable period.

Shaheen Akhtar, Muhammad Ibrahim1 Muhammad Riaz, Mudasar Abbas, Muhammad Asif(2015)[66]: The main purpose of the study is to analyze the impact of liquidity on the profitability in sugar sector of Pakistan. Correlation results show that there is strong positive relationship between all variables. So, the results show that firms must utilize its liquidity in best way in order to improve the profitability.

2.7 CONCLUSION

Prior research has found that sugar companies, operating in India are severely affected by the acute problems like ‘shortage of working capital’, ‘poor liquidity’ and ‘poor profitability’. Profitability is positively related with liquidity, efficiency of management and financial structure of the company. Some studies have emerged focusing on and examining the impact of working capital management on profitability in the sugar industries. Some of the studies covered leverage, liquidity, solvency, profitability of sugar industry individually. However, specific research studies exclusively on impact of working capital components on profitability are ‘scanty’. Therefore, an attempt has been made in this research work to study the impact of working capital components on profitability of select private sugar factories in Andhra Pradesh and Telangana.

3. RESEARCH METHODOLOGY

3.1 NEED FOR THE STUDY

The sugar industry is experiencing the low profitability and lower rate of return on capital employed due to non-professionalized working capital management.[91] This has affected the sector inability to raise the required funds to meet the immediate needs as well as future requirements for modernization of the industry and future expansion. One of the main reasons for poor performance is failure in maintenance of liquidity leading to low profitability.

3.2 RESEARCH GAP

The financial manager must be in a position to know which working capital components affect the profitability of the sugar unit? How working capital components are affecting the profitability? How profitability of the firm can be enhanced? These questions call for a scientific examination in select sugar units in Andhra Pradesh and Telangana states.

The purpose of the study is to find a deep insight into the impact of working capital on profitability of private sugar industry in Andhra Pradesh and Telangana. There are several studies available on the working capital management of sugar industry and a few research studies have been undertaken on impact of working capital management on profitability in general. However, specific research studies exclusively on impact of working capital components on profitability are 'scanty'. Therefore, an attempt has been made in this research work to study the impact of working capital components on profitability of select private sugar factories in Andhra Pradesh and Telangana. This study would be useful to analyze the impact of working capital components on profitability of select private sugar companies in Andhra Pradesh and Telangana. To suggest suitable measures for effective and efficient working capital management and to improve corporate profitability.

3.3 OBJECTIVES OF THE STUDY

1. To examine the nature and efficiency of working capital components of select sugar units in the states of Andhra Pradesh and Telangana.

2. To study the impact of working capital management on profitability.

a) To determine the relationship between Inventory in days and Return on Total Assets of select units.
b) To determine the relationship between the accounts receivables period and Return on Total Assets of select sugar units.
c) To determine the relationship between the average payment period and Return on Total Assets of select units.
d) To determine the relationship between the cash conversion cycle and Return on Total Assets of select units.

3. To analyze and find out that there is any impact of difference in working capital components in Andhra Pradesh and Telangana.

3.4 HYPOTHESES OF THE STUDY:

The study envisaged the following hypotheses.

SECTION-1: Computation and comparison of Financial Ratios.

SECTION-2: significant difference in level of various working capital component among the selected sugar industries between Andhra Pradesh and Telangana

1. **$H_0$1:** There is no significant difference in the level of Current ratio among the selected sugar industries between the states of Andhra Pradesh and Telangana.
2. **$H_0$2:** There is no significant difference in level of Quick asset ratio among the selected sugar industries between the states of Andhra Pradesh and Telangana.
3. **$H_0$3:** There is no significant difference in the level of gearing ratio among the selected sugar industries and between the states of Andhra Pradesh and Telangana.
4. **$H_0$4:** There is no significant difference in the level of Trade debtors to current asset ratio among the selected sugar industries and between states of Andhra Pradesh and Telangana.
5. **$H_0$5:** There is no significant difference in the level of Stock to current assets ratio among the selected sugar industries and between the states of Andhra Pradesh and Telangana.
6. **$H_0$6:** There is no significant difference in the level of current assets to total ratio among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

7. **$H_0$7:** There is no significant difference in the level of current liabilities to total asset ratio among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

8. **$H_0$8:** There is no significant difference in the level of current assets turnover ratio among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

9. **$H_0$9:** There is no significant difference in the level of firm size among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

10. **$H_0$10:** There is no significant difference in the level of Inventory in days among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

11. **$H_0$11:** There is no significant difference in the level Accounts receivables in days among the selected sugar industries and between the the states of Andhra Pradesh and Telangana.

12. **$H_0$12:** There is no significant difference in the level of Accounts payable in days among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

13. **$H_0$13:** There is no significant difference in the level of cash conversion cycle days among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

14. **$H_0$14:** There is no significant difference in the level of operating profit margin among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

SECTION-3: Correlation between Working Capital components with Return On Total Assets

15. **H015:** There is no relationship of working capital components with the ROTA of selected sugar units of Andhra Pradesh.

16. **$H_0$16:** There is no relationship of working capital components with the ROTA of selected sugar units of Telangana state.

SECTION-4: Impact of Working Capital Components on Return On Total Assets

17. **$H_0$17 :** There is no impact of working capital components on Return on total assets of sugar manufacturing units of Andhra Pradesh state

18. **$H_0$18:** There is no impact of working capital components on Return on total assets of sugar manufacturing units of Telangana State.

SECTION -5: Means of key working capital components are significantly different among the select units

19. **$H_0$19:** There is significant difference in Inventory in days among the selected sugar industries in the Andhra Pradesh state.

20. **$H_0$20:** There is significant difference in Accounts Receivables among the selected sugar industries in the Andhra Pradesh state.

21. **$H_0$21:** There is significant difference in Accounts Payables among the selected sugar industries in the Andhra Pradesh state.

22. **$H_0$22:** There is significant difference in Inventory in days among the selected sugar industries in the Telangana state.

23. **$H_0$23:** There is significant difference in Accounts Receivables among the selected sugar industries in the Telangana state.

24. **$H_0$24:** There is significant difference in Accounts Payables among the selected sugar industries in the Telangana state.

3.5 DATA COLLECTION AND ANALYSIS

Basically, the study is based on the secondary data. The data for the study have been obtained from various sources like Annual reports of the sample sugar companies, Sugar Statistics, Indian Sugar Mills Association, Books, Journals, Magazines and related Websites etc.

The study is undertaken on the basis of secondary data. The information is collected from the firms audited financial statements of select sugar companies from 2006 to 2015.

Impact of working capital management on profitability of sugar industry: A comparative study of units in Andhra Pradesh and Telangana has been divided into three sections

Firstly, Analysis of working capital components and profitability measures of select sample units of Andhra Pradesh and Telangana has been analysed through Financial Ratios.

Secondly, impact of working capital components on profitability has been examined.

Thirdly, Analysis of impact difference of working capital on profitability of sugar industry in Andhra Pradesh and Telangana.

3.6 TOOLS AND TECHNIQUES OF ANALYSIS

According to the objectives and need of the study, various financial and statistical tools and techniques which applied are mentioned under:

Financial Ratios:

- Working capital variables(Independent Variables)
- Profitability Measures (Dependent Variables)

Statistical Tools:

- Correlation Analysis
- Regression Analysis
- Analysis of Variance
- Tables are presented to illustrate the facts and figures wherever necessary

Table 3.6.1: Table of Variables used in the study

INDEPENDENT VARIABLES	
Current Ratio	Current Assets/ Current Liabilities
Quick Ratio	Quick Assets/Current Liabilities
Gearing Ratio	Total Debt Divided By Total Equity
Trade Debtors To Current Assets Ratio	Debtors Divided By Current Assets
Current Assets To Total Assets	Current Assets Divided By Total Assets
Current Liabilities To Total Assets	Current Liabilities Divided By Total Assets
Current Assets Turnover	Current Assets Divided By Net Sales
Firm Size(control variable)	Natural Logarithm Of Firm's Sales During Study Period
Total Assets Turnover	Total Assets Divided By Net Sales
Inventory conversion days	Inventory Divided By Cost Of Goods Sold And Multiplied By 365 Days
Accounts Recievables in Days	Accounts Receivables Divided By Sales And Multiplied By 365 Days
Accounts Payables In Days	Accounts Payables Divided By Cost Of Goods Sold And Multiplied By 365 Days
Cash Conversion Cycle	Inventory Conversion In Days + Accounts Receivables In Days-Accounts Payables In Days
DEPENDENT VARIABLES	
Return On Total Assets(ROTA)	Earnings Before Interest and Taxes/Total Assets
Operating Profit Margin	Operating Profit /Net Sales.

3.7 SAMPLE SELECTION AND PERIOD OF THE STUDY

The selection of undertaking is confined to the sugar companies established as public limited companies in private sector carrying their operations in the states of Andhra Pradesh and Telangana. As on 31-03-2014, there are 36 listed companies in the states of Andhra Pradesh and Telangana (18 listed sugar companies in the state of Andhra Pradesh state and 18 listed sugar companies in Telangana state). By adopting stratified random sampling with proportional allocation technique both in AP and Telangana state, 18 sugar companies (50 percent) have been selected for the study through random sampling. The stratification was made state-wise (Andhra Pradesh and Telangana). Thus, the present study is confined to nine sugar units in the state of Andhra Pradesh and nine sugar units in Telangana state. The study period covers ten years of select sugar companies in the states of Andhra Pradesh and Telangana i.e. from 2006 to 2015.

Table 3.7.1

Sample Design of Sugar Companies in Andhra Pradesh and Telangana

S.No	State	Total listed sugar units	Sample Sugar Companies
1	Andhra Pradesh	18	9
2	Telangana	18	9
	Total	36	18

Table 3.7.2

List of Select sample sugar companies for the study

S.NO	NAME OF THE SUGAR INDUSTRY	STATE
1.	The Andhra Sugars Limited	Andhra Pradesh
2.	PARRYS Sugars Ltd	Andhra Pradesh
3.	KCP Sugars Limited	Andhra Pradesh
4.	Empee Sugars And Chemicals Ltd.	Andhra Pradesh
5.	The Jeypore Sugar Co Ltd.,	Andhra Pradesh
6.	Nava Bharat Ventures Limited	Andhra Pradesh
7.	Sagar Sugars limited	Andhra Pradesh
8.	Prudential Tirumala Sugars Limited	Andhra Pradesh
9.	Suddalagunta Sugars Limited	Andhra Pradesh
10.	Madhucon Sugar And Power Industries Limited	Telangana
11.	Kakatiya Cement Sugar And Industries Limited	Telangana
12.	Gayatri Sugars Limited	Telangana
13.	Delta Sugars Limited	Telangana
14.	G M R Vasavi Industries Limited	Telangana
15.	Shiva Shakti Sugar Mill India Private Limited	Telangana
16.	Nizam Decca Sugars Limited	Telangana
17.	Trident Sugars Ltd	Telangana
18.	NSL Krishnaveni Sugars Limited	Telangana

3.8 SCOPE OF THE STUDY

The study is confined to the sample private sugar units which are engaged in sugar production in Andhra Pradesh and Telangana states. The study intends to analyse the impact of working capital components on profitability of select Private sugar companies in the states of Andhra Pradesh and Telangana.

3.9 LIMITATIONS OF THE STUDY

1. The study is derived and evaluated from the audited financial statements provided by the select sugar companies and as such the findings depend on the accuracy of the data provided.
2. The study considers only monetary aspects but ignores nonmonetary aspects such as management of labour relation, customer's satisfaction, management skills which are equally important for the financial decision making of a company.
3. The study depends totally on the interim reports involves the issuance of three quarterly financial statements each year.
4. Financial statements prepared based on the historical data that may not be effective in corporate planning.
5. The fluctuation of inflation has not been considered in the study.

3.10 PLAN OF THE THESES:

Chapter–1 Contains introduction to working capital and overview of sugar industry.

Chapter –2 Deals with review of literature.

Chapter –3 Deals with Research Methodology.

Chapter– 4 Contains Data Analysis and interpretation

Section -I: Comparison and computation of Financial Ratios

Section -2: Testing of Hypothesis

Section-3: Correlation between working capital components with return on total assets

Section-4: Impact of working capital components on ROTA

Section-5: analyze the means of key working capital components are significantly different among the select units

Chapter–5 Deals with Summary of findings, suggestions and conclusions.

References

Annexure

Index

Publications

4. DATA ANALYSIS AND INTERPRETATION

SECTION-1

4.1 COMPUTATION AND COMPARISON OF RATIOS

4.1.1 CURRENT RATIO:

Current ratio is also considered as working capital variable by Eljelly (2004), Gopinathan (2012).Current ratio measures company's current assets against its current liabilities. The standard current ratio is 2:1. In order to measure the liquid position of the sample sugar units in the states of Andhra Pradesh and Telangana, current ratio is calculated as per the select sample sugar company's annual reports (shown in the appendix from B-I to B-XVIII) and analysed.

TABLE-4.1.1

CURRENT RATIO OF SELECT SUGAR UNITS IN ANDHRA PRADESH

(In times)

Name Of The Company										
Year	**Andhra Sugars**	**Empee Sugars**	**Jeypore Sugars**	**Kcp Sugars**	**Nava Bharat Sugars**	**Parrys Sugars**	**Prudential Sugars**	**Sagar Sugars**	**Suddalagunta Sugars**	**Average**
2005-06	1.534	2.652	0.710	1.402	2.367	1.486	2.676	0.258	1.320	1.600
2006-07	1.388	1.404	0.904	1.051	1.904	0.839	2.438	0.638	1.74	1.367
2007-08	1.419	1.123	0.773	1.361	2.205	0.543	1.209	0.808	1.204	1.1827
2008-09	1.377	1.789	0.718	1.597	2.915	0.82	1.539	0.598	0.204	1.2841
2009-10	1.233	1.975	0.839	1.469	2.606	1.059	1.397	0.912	2.802	1.588
2010-11	1.411	0.848	0.685	0	3.236	1.996	1.543	1.112	2.802	1.514
2011-12	1.845	3.464	0.607	2.232	3.945	1.186	1.121	1.252	0.433	1.787
2012-13	1.768	2.179	0.640	1.879	5.676	1.618	1.045	1.224	1.805	1.981
2013-14	1.794	1.535	0.492	2.21	2.959	1.147	1.237	0.602	1.836	1.534
2014-15	1.962	1.551	0.428	2.114	2.577	0.950	0.385	0.355	0.356	1.186
Average	1.573	1.8521	0.678	1.532	3.039	1.164	1.459	0.776	1.45	**1.5023**

Source: computed from the annual reports of sample sugar units of Andhra Pradesh state from 2006-2015

Table-4.1.1 reflects the Current Ratio of sugar unit in Andhra Pradesh and the relative position of the selected sugar manufacturing units under the study. Current ratio is considered to be optimum at 2:1 i.e., Current Assets should be 2 times of current liabilities. Since the availability of the basic raw material i.e., Sugar cane is seasonal in nature hence the sugar companies have to stock them for a longer period to avoid lead time. Generally this activity makes the Inventory to higher level, in turn resulting in a higher current assets level over the current liabilities, this in turn lead to a higher current ratio if not it will adversely affect. As evident from the table, over the period of analysis the values of current ratio of the selected manufacturing units Nava Bharat Sugars Ltd., is reaching to optimum Current Ratio, (Except, Nava Bharat Sugars, KCP Sugars Empee sugars and Prudential Sugar) never went above 2:1. For the last 10 years i.e. from the year 2005-06 to 2014-2015. Hence the selected sugar units were not stable in maintaining their Current Ratio. Further, a look at the above table also shows that, except Nava Bharat sugars rest of the units recorded a depressive current ratio over the years under reference. It is further observed that the average current ratio of the select units also stood at below the standard norm (2:1). The analysis brings out the observation that the selected sugar factories particularly with respect to current ratio were not showing satisfactory performance (except Nava Bharat Sugars). During the study period with respect to current ratio in Andhra Pradesh Nava Bharat sugars(3.039), stood at first followed by, Empee sugars(1.852), Andhra sugars(1.573), KCP sugars(1.532), Prudential sugars(1.459), Suddalagunta sugars(1.450), Parrys sugars(1.164), Sagar sugars(0.776) and Jeypore sugars(0.678) till the year.

TABLE-4.1.2

CURRENT RATIO OF SELECT SUGAR UNITS IN TELANGANA

(In times)

	Name of the Company									
Year	**Delta Sugars**	**Gayathri Sugars**	**GMR Sugars**	**Kakatiya Sugars**	**Madhucon Sugars**	**Ndsl Sugars**	**Nsl Sugars**	**Shivashakti Sugars**	**Trident Sugars**	**average**
2005-06	0.92	4.276	2.417	1.549	1.770	0.356	0.777	0.851	2.137	1.6725
2006-07	2.260	3.157	2.787	1.982	0.647	2.284	0.771	0.937	2.127	1.8835
2007-08	2.216	2.822	0.054	2.824	0.257	1.714	0.224	0.973	1.909	1.4436
2008-09	0.737	4.076	1.394	3.584	0.396	2.427	0.844	1.022	1.864	1.816
2009-10	0.752	3.416	2.147	5.097	0.328	2.593	2.926	1.088	1.908	2.2505
2010-11	1.565	1.062	2.531	2.190	0.267	2.326	0.214	2.430	3.053	1.7375
2011-12	1.1997	0.7635	1.114	3.591	-0.076	0.698	1.096	2.673	3.390	1.6054
2012-13	1.092	0.706	1.597	3.967	-0.208	0.686	0.658	2.625	3.699	1.6468
2013-14	1.284	0.931	2.837	3.907	-0.152	0.719	0.273	2.852	2.738	1.7098
2014-15	1.636	0.739	2.671	7.944	-0.201	0.672	0.322	3.447	2.329	2.1732
Average	1.366	2.195	1.955	3.663	0.303	1.447	0.811	1.890	2.5154	**1.7938**

Source: Computed from the annual reports of sample sugar units of Telangana State from 2006-2015

Table-4.1.2 presents the Current Ratio of select sugar manufacturing units in Telangana state. All units (except Kakatiya sugars, Gayathri Sugars And Trident) not crossing the norm 2:1 and were not stable in maintaining their current ratio during the study period. Further, a look at the selected units also shows that, except Kakatiya sugars with 3.663, Gayathri sugars with 2.195 and Trident sugars with 2.329, rest of the units recorded unsatisfactory current ratio over the years under reference except in few years. Overall the study period with respect to current ratio in Telangana state sugar units Kakatiya sugars(3.663) stood at first followed by Trident sugars(2.5154), Gayathri sugars(2.195), GMR sugars(1.955), Shivashakti Sugars(1.890), Ndsl Sugars(1.447), Delta Sugars(1.366) And Madhucon sugars(0.303).

TABLE 4.1.3

AVERAGE CURRENT RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA, 2006-2015

(In times)

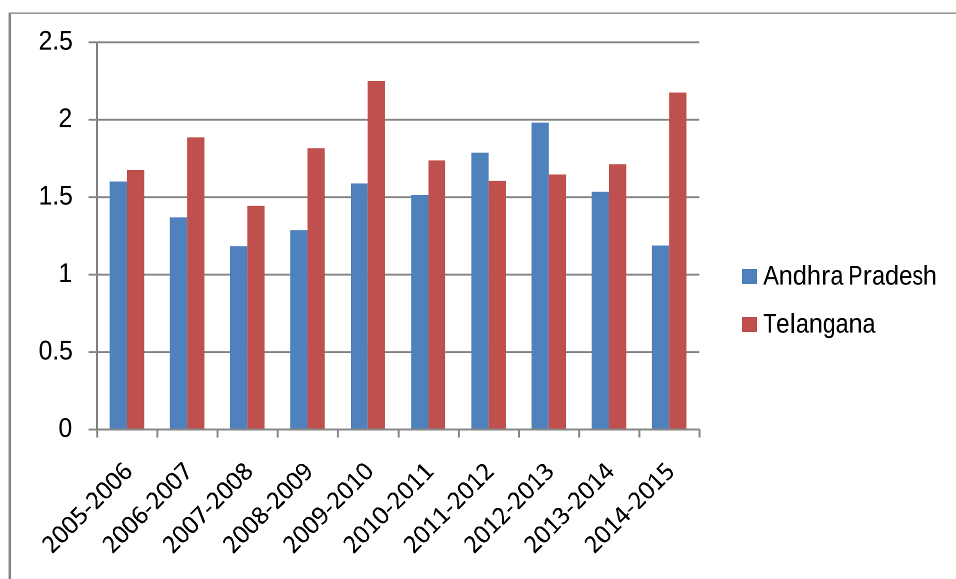
Years	**2005-2006**	**2006-2007**	**2007-2008**	**2008-2009**	**2009-2010**	**2010-2011**	**2011-2012**	**2012-2013**	**2013-2014**	**2014-2015**
Andhra Pradesh	1.600	1.367	1.182	1.284	1.588	1.514	1.787	1.981	1.534	1.186
Telangana	1.672	1.883	1.443	1.816	2.250	1.737	1.605	1.646	1.709	2.173

Source: Current ratio of select sugar units in Andhra Pradesh, Table 4.1.1

Current ratio of select sugar units in Telangana, Table 4.1.2

FIGURE 4.1.3

AVERAGE CURRENT RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA, 2006-2015



Source: Average current ratio of sample units in Andhra Pradesh and Telangana 2006-2015, Table 4.1.3

The above graph depicts average current ratio of select sugar units from 2006 to 2015 in Andhra Pradesh & Telangana states. The overall liquidity performance of the sample units recorded unsatisfactory performance. During 2005-2006, there is a slight increase which further increased to greater extent in 2009-2010(2.250 times) in the select sugar companies in Telangana state, whereas Andhra Pradesh sugar manufacturing units are fluctuating and never reaching the standard.

4.1.2 QUICK RATIO:

It establishes relationship between liquid assets and current liabilities. It is a refinement to current ratio and second testing device for working capital. Usually, a high acid test ratio is an indication that the firm is liquid and has ability to meet its current or liquid liabilities in time and on the other hand a low quick ratio represents that the firm’s liquidity position is not good. Quick ratio taken as working capital variable by Gopinathan(2012). Quick ratio is calculated as per the select sample sugar company’s annual reports (shown in the appendix from B-I to B-XVIII) and analysed.

TABLE-4.1.4

QUICK RATIO OF SELECT SUGAR UNITS IN ANDHRA PRADESH

(In times)

Name Of The Companies										
Year	**Andhra Sugars**	**Empee Sugars**	**Jeypore Sugars**	**Kcp Sugars**	**Nava Bharat Sugars**	**Parrys Sugars**	**Prudential Sugars**	**Sagar Sugars**	**Suddalagunta Sugars**	**Average**
2005-06	0.339	1.005	0.066	0.192	0.704	0.366	1.2077	0.1367	2.816	0.7591
2006-07	0.296	0.685	0.121	0.155	0.589	0.599	1.0276	0.0474	1.255	0.5305
2007-08	0.297	0.274	0.089	0.175	0.562	0.262	0.6582	0.2318	1.799	0.4831
2008-09	0.428	0.262	0.062	0.249	0.706	0.274	0.4092	0.1575	0.159	0.3007
2009-10	0.477	0.573	0.078	0.214	1.119	0.210	0.5008	0.0431	2.532	0.6385
2010-11	0.397	0.125	0.096	0	2.260	0.307	0.4954	0.0565	0.105	0.4269
2011-12	0.588	1.306	0.093	0.26216	2.657	0.298	0.3589	0.0688	0.207	0.6488
2012-13	0.600	1.271	0.046	0.290	3.875	0.044	0.3505	0.0764	1.159	0.8569
2013-14	0.508	0.714	0.026	0.284	1.368	0.269	0.4387	0.0389	1.638	0.5872
2014-15	0.604	1.005	0.0242	0.378	1.102	0.148	0.5739	0.0331	2.373	0.6935
Average	0.454	0.722	0.0706	0.220	1.4948	0.278	0.6020	0.089	1.404	**0.5925**

Source: Computed from the annual reports of sample sugar units of Andhra Pradesh state from 2006-2015

Table-4.1.4 presents the Quick Ratio of the selected sugar units of Andhra Pradesh. The Quick Assets Ratio shows the actual liquidity of a firm. As a convention the Liquid Ratio of 1:1 is considered satisfactory. Generally, the firms should be efficient in maintaining its Liquid Assets over its Current liability. During the period of analysis the select sugar manufacturing units were not maintained their Quick Assets equal to Current Liabilities. All the companies throughout the study period except Nava Bharat sugars had stepped into severe liquidity crisis and the quick ratio had gone below the ideal ratio. Further, a look at the selected units also shows that, all the units recorded a depressive quick assets ratio over the years under reference. Gopinathan Radhika, Ramachandran Azhagaiah (2012)[77] had examined the impact of working capital management on profitability by using the liquidity ratios. The present analysis had observed that the highest average quick ratio (i.e., 1.494:1) was found in Nava Bharat sugars and lowest average of quick ratio (i.e., 0.07601:1) was observed in Jeypore Sugar. The analysis brings out the observations that, the Quick Assets ratio of the selected sugar manufacturing Companies were not at all in satisfactory level. The sugar companies of coastal region are not in a safe position with respect to liquidity. Overall the study period with respect to Quick assets ratio in coastal region out of the six sugar manufacturing units Nava Bharat sugars(1.4948) stood at first followed by Suddalagunta sugars(1.4046), Empee sugars(0.722), Prudential Sugars(0.6020), Andhra sugars(0.454), Parrys sugars(0.278), KCP sugars(0.220), sagar sugars (0.089) and Jeypore sugars(0.0706).

TABLE-4.1.5

QUICK RATIO OF SELECT SUGAR UNITS IN TELANGANA

(In times)

Name Of The Companies										
Year	**Delta Sugars**	**Gayathri Sugars**	**GMR Sugars**	**Kakatiya Sugars**	**Madhucon Sugars**	**Ndsl Sugars**	**Nsl Sugars**	**Shivashakti Sugars**	**Trident Sugars**	**Average**
2005-06	2.9170	0.5871	1.1216	0.3214	1.5710	0.9232	0.1149	0.6223	0.1274	0.9228
2006-07	1.3911	0.5506	1.2053	-0.00784	0.3496	0.4392	0.0600	0.6415	0.127	0.5285
2007-08	0.6924	0.2638	2.4574	0.4322	0.0518	0.5865	0.0462	0.7189	0.5454	0.6438
2008-09	1.7381	0.154	0.9471	2.0182	0.1036	0.9750	0.5618	0.8004	0	0.8109
2009-10	2.4049	0.2975	1.3459	4.0867	0.0791	1.6007	2.9253	0.6996	1.0783	1.6131
2010-11	1.0487	0.1215	1.2546	0.8521	0.0839	0.7723	0.2085	1.9668	0.7594	0.7853
2011-12	0.2432	0.0722	1.5833	1.0605	-0.1870	0.2494	0.4567	2.0170	0.9600	0.7172
2012-13	0.2568	0.0698	0.6412	0.6581	-0.3348	0.2915	0.3545	2.3322	1.3215	0.6212
2013-14	0.7362	0.0794	0.8373	1.1754	-0.2940	1.2736	2.6738	2.2556	0.8494	1.0651
2014-15	0.9278	0.1030	1.5283	2.8301	-0.3579	1.3628	2.8273	2.6854	0.4206	1.3697
Average	1.2356	0.2300	1.2922	1.3427	0.1065	0.8474	1.0229	1.4740	0.6189	**0.9077**

Source: Computed from the annual reports of sample sugar units of Telangana State from 2006-2015

Table-4.1.5 presents the Quick Assets Ratio of select sugar producing units in the Telangana State and the relative position of units under study. The Quick Assets Ratio shows the actual liquidity of a firm. As a convention the Liquid Ratio of 1:1 is considered as satisfactory. All the companies throughout the study period except few had stepped into severe liquidity crisis and the quick ratio had gone below the ideal ratio. Further, a look at the selected units also shows that, all the units recorded a depressive quick assets ratio over the years under reference. The highest average quick ratio (1.4740:1) was found in Shivashakti sugars. The analysis brings out the observation that, the Quick Assets ratio of the select sugar companies was not at all satisfactory except few in the given years of the study. The companies were not in a safe position with respect to liquidity. Overall the study period with respect to Quick assets ratio of select units in Telangana, Shivashakti sugars(1.4740) stood at first followed by Kakatiya sugars(1.3427), GMR sugars(1.2922), Delta sugars(1.2356), NSL sugars(1.0229), NDSL sugars(0.8474), Trident sugars(0.6189) and Gayathri sugars(0.2300).

TABLE-4.1.6

AVERAGE QUICK RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015

(In times)

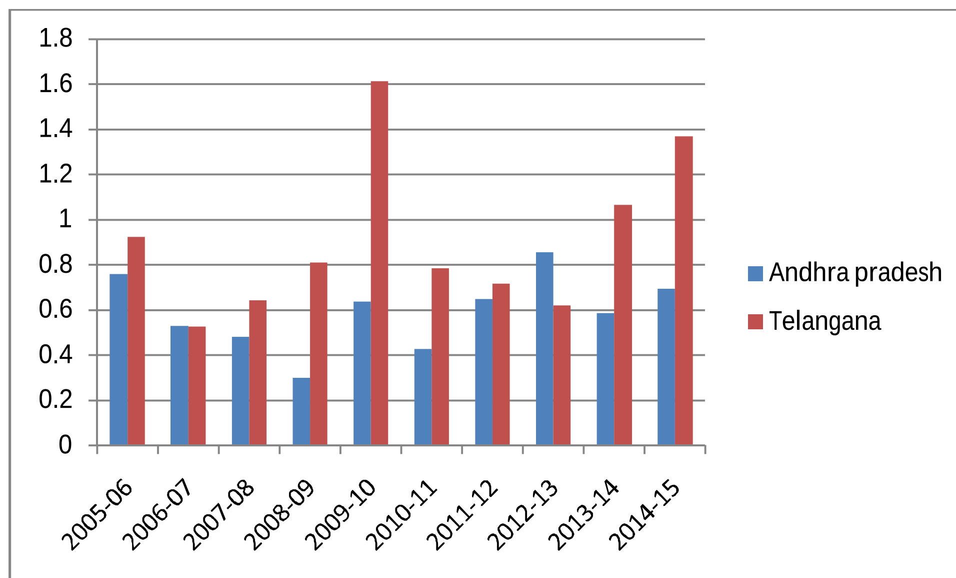
Years	**2005-2006**	**2006-2007**	**2007-2008**	**2008-2009**	**2009-2010**	**2010-2011**	**2011-2012**	**2012-2013**	**2013-2014**	**2014-2015**
Andhra pradesh	0.7591	0.5305	0.4831	0.3007	0.6385	0.4269	0.6488	0.8569	0.5872	0.6935
Telangana	0.9228	0.5285	0.6438	0.8109	1.6131	0.7853	0.7172	0.6212	1.0651	1.3697

Source: Quick ratio of select sugar units in Andhra Pradesh, Table 4.1.4

Quick ratio of select sugar units in Telangana, Table 4.1.5

FIGURE 4.1.6

AVERAGE QUICK RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA, 2006-2015



Source: Average Quick ratio of sample units in Andhra Pradesh and Telangana 2006-2015, Table 4.1.6

The above graph depicts average quick assets ratio of select units of Andhra Pradesh & Telangana state from 2006-2015. It observes that during the year 2005-2006, there is a slight increase which further faced declining to greater extent till 2008-2009 in the Andhra Pradesh sugar manufacturing units & increase in Telangana state manufacturing units during the years. Thus, sugar companies of Telangana state has a better performance than during the study period

4.1.3 GEARING RATIO

A gearing ratio is a general classification describing a financial ratio that compares some form of owner's equity (or capital) to funds borrowed by the company. Gearing is a measurement of the entity's financial leverage, which demonstrates the degree to which a firm's activities are funded by owner's funds versus creditor's funds. It is calculated as per the select sample sugar company's annual reports (shown in the appendix from B-I to B-XVIII) and analysed.

TABLE-4.1.7

GEARING RATIO OF SELECT SUGAR UNITS IN ANDHRA PRADESH

(In Times)

	Name Of The Companies									
Year	**Andhra Sugars**	**Empee Sugars**	**Jeypore Sugars**	**KCP Sugars**	**Nava Bharat Sugars**	**Parrys Sugars**	**Prudential Sugars**	**Sagar Sugars**	**Suddalagunta Sugars**	**Average**
2005-06	11.911	11.2654	6.2847	4.6243	16.3403	5.0189	0.4142	0.6020	4.7956	6.8062
2006-07	11.325	0.5272	24.854	3.5361	34.8088	8.1583	0.3552	0.8077	6.5032	10.0972
2007-08	12.774	1.0100	43.7902	5.8862	25.6132	16.2550	0.3483	1.7030	6.4488	12.6476
2008-09	11.737	1.6769	53.3708	5.2998	28.2395	21.7555	0.0430	1.5846	0.1071	13.7571
2009-10	8.167	1.0015	62.4944	4.4029	25.8040	26.7399	0.3601	1.825	0.0930	14.5430
2010-11	10.273	9.2699	55.8918	0	8.5258	30.6984	0.3470	2.9085	0.0875	13.1113
2011-12	10.863	12.2873	79.4194	9.6278	6.8942	30.1412	0.1120	4.509	0.0989	17.1058
2012-13	8.6	13.2651	76.1037	4.4135	7.1052	8.8987	0.0193	5.5095	0.1253	13.7822
2013-14	8.876	12.8379	70.8410	7.6904	5.3805	8.3021	0.0353	2.4088	0.3537	12.9695
2014-15	10.959	16.8739	82.3090	8.7301	5.1287	6.2575	0.7362	1.2193	0.6836	14.7663
Average	10.549	8.0015	55.5359	5.4211	16.3840	16.2225	0.2770	2.3079	1.9296	**12.9586**

Source: Computed the annual reports of sample sugar units of Andhra Pradesh state from 2006-2015

The above table-4.1.7 shows the Gearing Ratio and the relative position of the selected sugar manufacturing units in Andhra Pradesh state. The gearing ratio measures the proportion of a company's borrowed funds to its equity. The ratio indicates the financial risk to which a business is subjected, since excessive debt can lead to financial difficulties. A high gearing ratio represents a high proportion of debt to equity is indicative of a great deal of leverage, where a company is using debt to pay for its continuing operations, where as a low gearing ratio represents a low proportion of debt and indicative of conservative financial management. An excessively increasing gearing ratio will put their loans at risk of not being repaid. Further, a look at the selected units also shows that, all the units recorded a low gearing ratio over the years under the study. The highest average gearing ratio (i.e., 55.5359) was found in Jeypore sugars followed by Nava Bharath sugars (16.3840) and lowest gearing ratio was found to be at prudential sugars with (0.2770). The analysis brings out the observations that, the gearing ratio of the selected sugar manufacturing companies were at satisfactory level. The Companies were in a safe position with respect to debt repayment. The Nava Bharat sugars and Jeypore sugars are to ascertainment of the soundness of long term financial policies of the companies.

TABLE-4.1.8

GEARING RATIO OF SELECT SUGAR UNITS IN TELANGANA

(In Times)

Name Of The Companies										
Year	**Delta Sugars**	**Gayathri Sugars**	**GMR Sugars**	**Kakatiya Sugars**	**Madhucon Sugars**	**Ndsl Sugars**	**Nsl Sugars**	**Shivashakti Sugars**	**Trident Sugars**	**Average**
2005-06	0.7265	1.2105	0.7107	7.9935	9.3969	0.6451	0.4000	0.2878	1.0520	2.4914
2006-07	0.7846	1.7105	0.5255	7.3886	9.9771	0.5761	0.4000	0.2878	1.0520	2.5224
2007-08	0.6507	2.0310	0.5673	7.5096	11.8273	0.6245	0.4000	0.0757	0.8619	2.7275
2008-09	0.7510	2.1626	0.7187	3.5045	14.2216	0.7872	0.4000	0.5303	0.0113	2.5652
2009-10	0.6972	2.2067	0.7735	1.6357	17.5396	0.8480	0.4000	0.5774	2.2850	2.9959
2010-11	0.2628	5.2709	0.8859	0.0527	19.2069	0.7708	0.4000	0.0058	3.1176	3.3303
2011-12	0.1941	1.9749	0.9188	0	25.1051	0.6699	0.4000	0	3.5511	3.6459
2012-13	0.2146	2.1338	0.8885	0	17.2364	0.6199	0.4000	0.0175	6.2740	3.0871
2013-14	0.6384	2.4950	0.3628	0.4504	18.3165	0.7293	0.4000	0.1754	4.4387	3.1118
2014-15	0.6893	1.5220	0.4301	4.4954	19.9321	0.8232	0.4000	0.1731	5.4373	3.7669
Average	0.5609	2.2718	0.6781	3.3030	16.2759	0.7094	0.4	0.2131	2.8081	3.0244

Source: Computed from the annual reports of sample sugar units of Telangana State from 2006-2015

Table-4.1.8 presents the Gearing Ratio of select sugar units in Telangana and the relative position of the select sugar manufacturing units under study. Over the period of analysis, out of the nine selected sugar manufacturing units the gearing values of five units (Delta sugars, Shivashakti sugars, GMR sugars, NDSL sugars, NSL sugars) were found to be efficient and satisfactory. The other four units (Kakatiya sugars, Trident sugars, Gayathri sugars, Madhucon sugars) gearing ratio average values during the study period were not satisfactory. Since an excessively increasing gearing ratio will put their loans at risk of not being repaid. The highest average gearing ratio (i.e., 16.27599) was found in Madhucon sugars. The analysis brings out the observation that the gearing ratio of the selected sugar manufacturing companies were at satisfactory level. The companies were in a safe position with respect to debt repayment.

TABLE-4.1.9

AVERAGE GEARING RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015

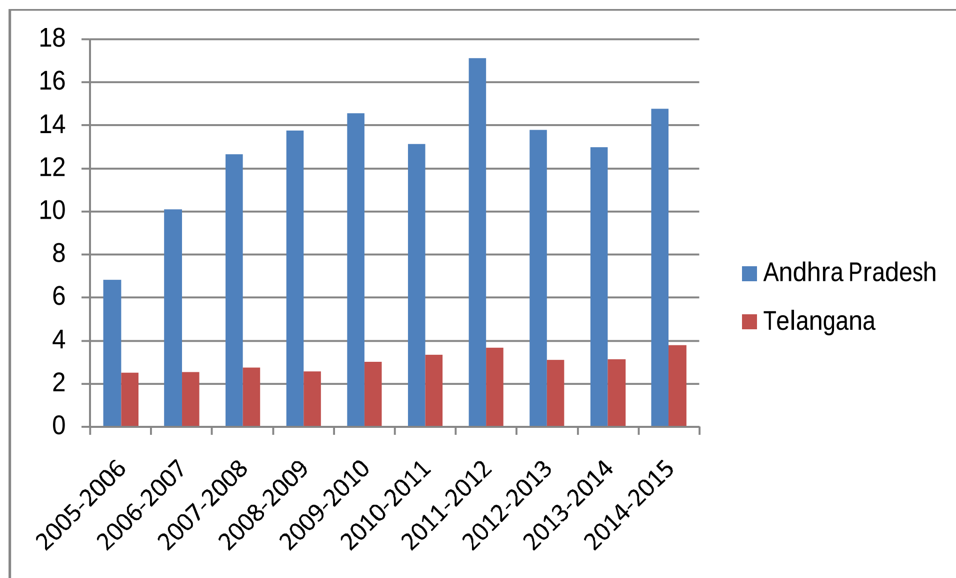
(In times)

Years	**2005-2006**	**2006-2007**	**2007-2008**	**2008-2009**	**2009-2010**	**2010-2011**	**2011-2012**	**2012-2013**	**2013-2014**	**2014-2015**
Andhra Pradesh	6.8062	10.0972	12.6476	13.7571	14.5430	13.1113	17.1058	13.7822	12.969	14.7663
Telangana	2.4914	2.5224	2.7275	2.5652	2.9959	3.3303	3.6459	3.0871	3.1118	3.7669

Source: Gearing ratio of select sugar units in Andhra Pradesh, Table 4.1.7
Gearing ratio of select sugar units in Telangana, Table 4.1.8

FIGURE 4.1.9

AVERAGE GEARING RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015



Source: Average Gearing ratio of sample units in Andhra Pradesh and Telangana 2006-2015, Table 4.1.9

The above graph depicts average gearing ratio of the Andhra Pradesh & Telangana state selected sugar manufacturing units from 2006-2015. It is observed that during 2005-2006, there is a slight increase which further faced increasing trends to greater extent till 2011-2012in sample sugar manufacturing units of Andhra Pradesh indicating (17.1058 times) due to high long term borrowing debts. Whereas select units of Telangana state has constant trends with less fluctuations during the study period. Thus, Telangana state has maintained better performance in company's leverage during the study period.

4.1.4 DEBTORS TO CURRENT ASSETS RATIO:

It measures the proportion of debtors in current assets. The high proportion indicate the debtors receivable are high the managing debtors will incur additional cost to the firm. Low ratio indicates the low proportion of debtors in total current assets. Hence the debt collection cost will be less. Debtors to current assets is calculated as per the select sample sugar company's annual reports (shown in the appendix from B-I to B-XVIII) and analysed.

TABLE-4.1.10

DEBTORS TO CURRENT ASSETS RATIO OF SELECT SUGAR UNITS IN ANDHRA PRADESH

(In times)

Name Of The Companies										
Year	**Andhra Sugars**	**Empee Sugars**	**Jeypore Sugars**	**Kcp Sugars**	**Nava Bharat Sugars**	**Parrys Sugars**	**Prudential Sugars**	**Sagar Sugars**	**Suddalagunta Sugars**	**Average**
2005-06	0.181	0.3654	1.2626	0.1016	0.2698	0.2233	0.1643	0.0258	0.0147	0.2898
2006-07	0.181	0.2274	0.1700	0.1156	0.2010	0.6329	0.2263	0.0377	0.0270	0.2021
2007-08	0.168	0.2029	1.7505	0.0992	0.2167	0.3666	0.3419	0.1882	0.0221	0.3729
2008-09	0.261	0.1277	0.1576	0.1232	0.1817	0.3035	0.1824	0.1944	0.0221	0.1726
2009-10	0.305	0.0446	0.8322	0.1210	0.2952	0.1791	0.1767	0.0365	0.0212	0.2235
2010-11	0.218	0.0815	0.2314	0	0.2087	0.0946	0.0994	0.0300	0.0212	0.1094
2011-12	0.271	0.3557	2.0441	0.0882	0.1305	0.1950	0.0946	0.0222	0.0245	0.3584
2012-13	0.279	0.5333	0.0582	0.1257	0.1799	0.0245	0.1028	0.0501	0.1000	0.1615
2013-14	0.232	0.4295	0.9668	0.0928	0.2668	0.2289	0.3534	0.0588	0.1002	0.3032
2014-15	0.253	0.5663	0.0647	0.1271	0.3662	0.1363	0.2836	0.0796	0.0084	0.2094
Average	0.235	0.2934	0.7538	0.0994	0.2316	0.2385	0.2025	0.0723	0.0361	**0.2402**

Source: Computed from the annual reports of sample sugar units of Andhra Pradesh state from 2006-2015

Table 4.1.10 presents the trade Debtors to current Assets ratio of sugar units in Andhra Pradesh and the relative position of the selected sugar units under study. Ratio of trade Debtors to current assets would reveal the size of receivables in current Assets and the opportunity cost associated with it. Higher the percentage, higher is the cost of carrying the receivables. If this ratio is very high, it means that the credit policy of the business may not be sound and too much money is locked up in the receivables. Over the period of analysis, among the select units of Andhra Pradesh the ratio of trade debtors to current assets was fluctuating. Concerned about the ratio, select units also shows that, all the units recorded fluctuating trade debtors to current assets ratio over the years under the study. The highest average ratio among the units was found in Jeypore sugars(0.753871) where as the lowest average ratio was found in Suddalagunta Sugar(0.0361). With regard to TDCA ratio Suddalagunta(0.0361) stood first followed by Sagar sugars(0.0723), KCP Sugars(0.0994), Prudential Sugars(0.2025), Nava Bharat Sugars(0.2316), Andhra Sugars(0.235), Parry Sugars(0.2385), Empee Sugars (0.2934), Jeypore Sugars(0.7538).

TABLE 4.1.11

DEBTORS TO CURRENT ASSET RATIO OF SELECT SUGAR UNITS IN TELANGANA

(In times)

Name Of The Companies										
Year	**Delta Sugars**	**Gayathri Sugars**	**GMR Sugars**	**Kakatiya Sugars**	**Madhucon Sugars**	**Ndsl Sugars**	**Nsl Sugars**	**Shivashakti Sugars**	**Trident Sugars**	**Average**
2005-06	0.1119	0.1285	0.2099	0.3657	0.2566	0.1001	0.1000	0.5531	0.0550	0.2089
2006-07	0.0942	0.1171	0.1682	0.2125	0.6635	0.0502	0.1000	0.5512	0.0553	0.2235
2007-08	0.1000	0.0780	0.4338	0.1711	0.6507	0.0317	0.1000	0.5033	0.0142	0.2314
2008-09	0.1245	0.0300	0.2274	0.1669	0.4491	0.0172	0.1000	0.6536	0.0363	0.2005
2009-10	0.2462	0.0274	0.1701	0.1844	0.6915	0.0972	0.1000	0.5669	0.5499	0.2926
2010-11	0.1927	0.0816	0.1127	0.2108	0.7408	0.0036	0.1000	0.5081	0.2333	0.2426
2011-12	0.1884	0.0415	0.0688	0.1766	0.562	0.0023	0.1000	0.3396	0.2560	0.3789
2012-13	0.1209	0.0324	0.1559	0.1209	1.0136	0.0140	0.2300	0.6766	0.1932	0.0589
2013-14	0.2937	0.0324	0.2749	0.1054	0.4066	0.0384	0.0384	0.4820	0.2723	0.1256
2014-15	0.0894	0.0762	0.3843	0.0670	1.0269	0.0483	0.0483	0.5081	0.1655	0.0400
Average	0.15619	0.0645	0.2206	0.1781	0.3578	0.0403	0.10167	0.5343	0.1831	**0.1245**

Source: Computed from the annual reports of sample sugar units of Telangana State from 2006-2015

Table-4.1.11 presents the trade Debtors to current Assets ratio of select sugar units in Telangana and the relative position of the select sugar units under study. Over the period of analysis, out of the nine selected sugar manufacturing units the ratio of trade Debtors to Current Assets four units (Shivashakti sugars, Trident sugars, Kakatiya sugars, Delta sugars) are slightly having higher ratio. The rest of the five units debtors to current assets ratio is satisfactory during the study period. Shivashakti sugars, Trident sugars, Kakatiya sugars, Delta sugars due to increasing ratio will increase their opportunity cost it becomes to increase the cost of carrying the receivables. Further, a look at the selected units also shows that, all the units recorded a low trade debtors to current assets ratio over the years under the study. The highest average ratio (i.e., 0.5343) was found in Shivashakti sugars. The analysis brings out the observation that, the trade debtors to current assets ratio of the selected sugar manufacturing companies were at satisfactory level. The companies were in a safe position with respect to debt collection on credit sales.

TABLE-4.1.12

AVERAGE DEBTORS TO CURRENT ASSETS RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015

(In times)

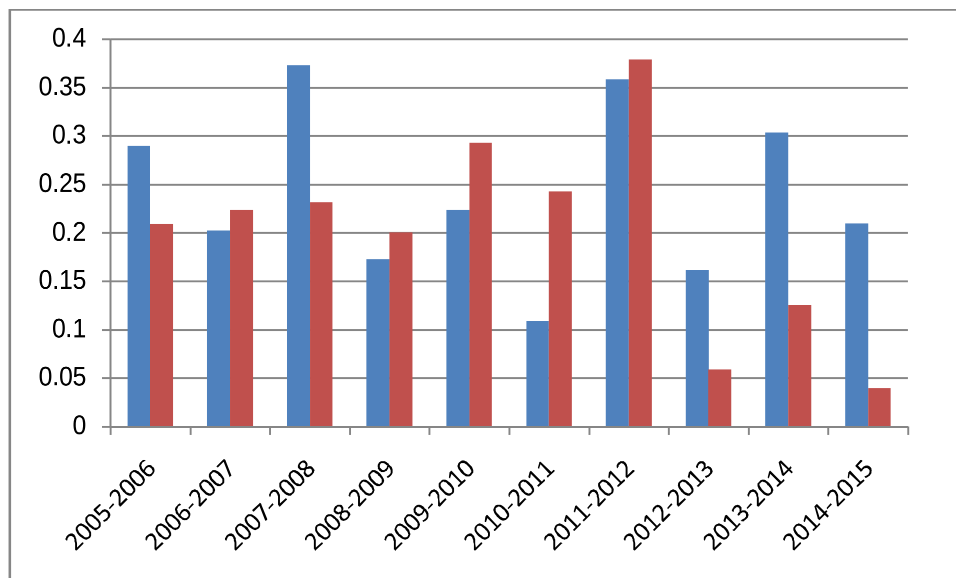
Years	**2005-2006**	**2006-2007**	**2007-2008**	**2008-2009**	**2009-2010**	**2010-2011**	**2011-2012**	**2012-2013**	**2013-2014**	**2014-2015**
Andhra Pradesh	0.2898	0.2021	0.3729	0.1726	0.2235	0.1094	0.3584	0.1615	0.3032	0.2094
Telangana	0.2089	0.2235	0.2314	0.2005	0.2926	0.2426	0.3789	0.0589	0.1256	0.0400

Source: Debtors to current assets ratio of select sugar units in Andhra Pradesh, Table 4.1.10

Debtors to current assets ratio of select sugar units in Telangana, Table 4.1.11

FIGURE 4.1.12

AVERAGE TRADE DEBTORS TO CURRENT ASSETS RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA, 2006-2015



Source: Average Trade Debtors to current assets ratio of sample units in Andhra Pradesh and Telangana 2006-2015, Table 4.1.12

The above graph depicts trade debtors to current asset ratio of the Andhra Pradesh & Telangana state selected sugar manufacturing units from 2006-2015. It is observes that from the year 2005-2006, there is a slight increase which further faced fluctuating trends till 2010-2011 in Andhra Pradesh state sugar units. There was a negative trend in Telangana state select sugar units(0.3780 time) in 2011-12. Thus, select sugar units of Andhra Pradesh state has maintained reasonable debtors proportion during the study period.

4.1.5 STOCK TO CURRENT ASSETS RATIO

It measures the proportion of stock in current assets. It is calculated as per the select sample sugar company's annual reports (shown in the appendix from B-I to B-XVIII) and analysed.

TABLE-4.1.13

STOCK TO CURRENT ASSETS RATIO OF SELECT SUGAR UNITS IN ANDHRA PRADESH

(In times)

Name Of The Companies										
Year	**Andhra Sugars**	**Empee Sugars**	**Jeypore Sugars**	**Kcp Sugars**	**Nava Bharat Sugars**	**Parrys Sugars**	**Prudential Sugars**	**Sagar Sugars**	**Suddalagunta Sugars**	**Average**
2005-06	0.7993	0.7423	0.7667	0.9052	0.8931	0.7022	0.5487	0.0106	0.2827	0.6281
2006-07	0.8237	0.6375	0.6982	0.8931	0.6964	0.5594	0.5785	0.0034	0.0719	0.6447
2007-08	0.8351	0.5121	0.6438	0.8891	0.7458	0.7081	0.4556	0.0030	0.0962	0.5537
2008-09	0.8474	0.7552	0.6592	0.9238	0.7197	0.7427	0.7341	0.0102	0.9621	0.5012
2009-10	0.7483	0.8534	0.7125	0.9305	0.6790	0.6967	0.6415	0.0003	0.0962	0.3986
2010-11	0.7024	0.7095	0.6894	0.9103	0.5464	0.6404	0.6789	0.0001	0.9623	0.4510
2011-12	0.7733	0.8522	0.6909	0.8794	0.5166	0.6842	0.6798	0.0561	0.9531	0.6230
2012-13	0.7275	0.6341	0.4895	0.8850	0.3444	0.3838	0.6647	0.1496	0.3575	0.6203
2013-14	0.7263	0.3745	0.8364	0.2836	0.5283	0.6384	0.7352	0.1637	0.4821	0.5315
2014-15	0.8354	0.2731	0.7351	0.5926	0.6283	0.7342	0.5374	0.2813	0.3846	0.4658
Average	0.7818	0.6343	0.6921	0.8092	0.6298	0.6490	0.6254	0.0678	0.4648	**0.5417**

Source: Computed the annual reports of sample sugar units of Andhra Pradesh state from 2006-2015

Table-4.1.13 presents the Stock to current Assets ratio of select sugar factories in Andhra Pradesh. Ratio of stock to Current Assets would reveal the percentage of Inventory in current Assets. If this ratio is very high, it means that the amount of the business may be locked in purchase of raw materials and to maintain the safety stock. A low inventory to Current Assets ratio would reveal the insufficient inventory than required in the organization. The highest average ratio was found in KCP sugars(0.80926). The analysis brings out the observation that, the Stock to Current Assets ratio of the selected sugar manufacturing Companies were moving nearer to each other except Sagar Sugars(0.0678). Sugar manufacturing units are agro based industries which are most vulnerable to the monsoon hence the firms should maintain adequate stock. The Companies were in a safe position with respect to maintaining safety stock. During the study period with respect to Stock to Current Assets ratio in Andhra Pradesh out of select sugar manufacturing units KCP Sugars(0.8092) stood at first followed by Andhra Sugars(0.7818), Jeypore Sugars(0.6921), Parrys Sugars(0.64901) Empee Sugars(0.6343), Nava Bharat Sugars(0.6298), Prudential sugars(0.6254), Suddalagunta sugars(0.4648) and Sagar Sugars(0.0678) with respect to carry the highest percentage of Stock in Current Assets as possible without affecting the production.

TABLE-4.1.14

STOCK TO CURRENT ASSETS RATIO OF SELECT SUGAR MANUFACTURING UNITS IN TELANGANA

(In times)

Name Of The Companies										
Year	**Delta Sugars**	**Gayathri Sugars**	**GMR Sugars**	**Kakatiya Sugars**	**Madhucon Sugars**	**Ndsl Sugars**	**Nsl Sugars**	**Shivashakti Sugars**	**Trident Sugars**	**Average**
2005-06	0.6730	0.6888	0.5361	0.5423	0.5802	0.7249	0.8429	0.1739	0.8910	0.6278
2006-07	0.5733	0.6926	0.5676	0.4372	0.7837	0.8078	0.9092	0.2695	0.7616	0.5513
2007-08	0.7847	0.6334	0.1954	0.6030	0.5264	0.6580	0.4834	0.3158	0.7840	0.5432
2008-09	0.6518	0.7230	0.3209	0.5218	0.5410	0.5983	0.0069	0.2617	0.8855	0.7060
2009-10	0.4939	0.7535	0.3732	0.1160	0.4926	0.3827	0.0042	0.2171	0.7546	0.5953
2010-11	0.7058	0.5829	0.5044	0.2950	0.0618	0.6681	0.0278	0.3570	0.8570	0.6488
2011-12	0.7973	0.8379	0.6152	0.5448	0.7102	0.6429	0.5836	0.1907	0.6849	0.6761
2012-13	0.7649	0.8154	0.5986	0.6548	0.7084	0.5754	0.4613	0.2455	0.7592	0.5151
2013-14	0.6383	0.7362	0.2837	0.6382	0.6273	0.3837	0.6027	0.2037	0.6702	0.5298
2014-15	0.7896	0.6027	0.1837	0.5835	0.5826	0.2033	0.5062	0.1173	0.6235	0.5557
Average	0.6872	0.7066	0.4178	0.4936	0.5614	0.5645	0.4428	0.23522	0.7671	**0.5949**

Source: Computed from the annual reports of sample sugar units of Telangana State from 2006-2015

Table-4.1.14 presents the Stock to current Assets ratio of sugar produced in the Telangana State and the relative position of the selected sugar manufacturing units under study. During the study period out of the nine select sugar manufacturing units the ratio of stock to current assets of three sugar companies (Delta sugars, Gayatri sugars and Trident sugars) were decreased. Further, a look at the selected units also shows that, all the units recorded a low Inventory to Current Assets ratio over the years under the study. The highest average ratio was found in Trident sugars(0.76715). The analysis brings out the observation that the stock to current assets ratio of the selected sugar manufacturing Companies were at low maintenance of stock in their organizations. The companies were not in a safe position with respect to safety stock maintenance also. During the analysis period out of the nine sugar manufacturing units Trident sugars(0.76715) stood at first followed by Gayathri sugars(0.7066), Delta sugars(0.6872), NDSL(0.5645), Madhucon sugars(0.5614), Kakatiya sugars(0.4936), GMR sugars(0.4428), NSL sugars(0.4178) and Shivashakti sugars(0.2352) with respect to carry the highest percentage of Stock in Current Assets as possible without affecting the production.

TABLE-4.1.15

AVERAGE STOCK TO CURRENT ASSETS RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA, 2006-2015

(In times)

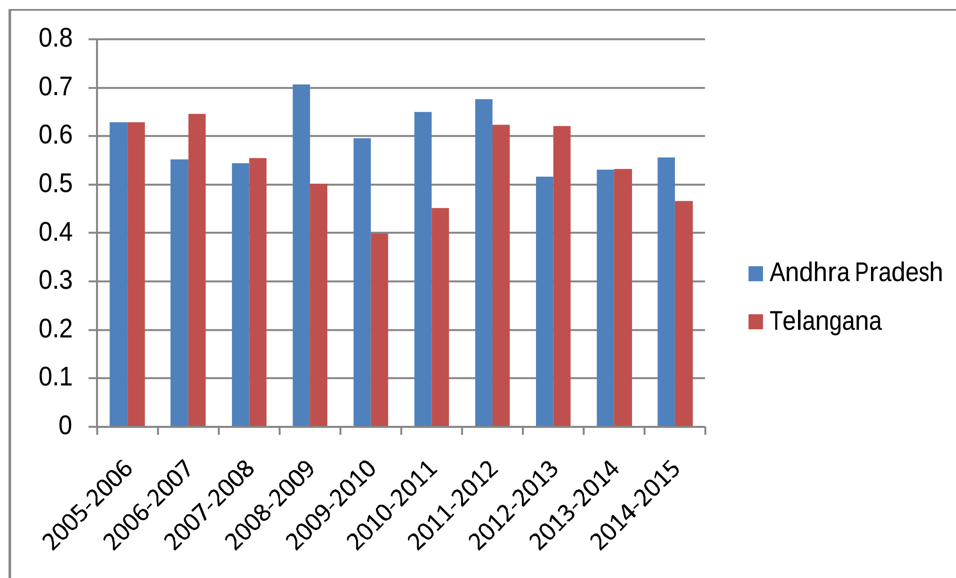
Years	**2005-2006**	**2006-2007**	**2007-2008**	**2008-2009**	**2009-2010**	**2010-2011**	**2011-2012**	**2012-2013**	**2013-2014**	**2014-2015**
Andhra Pradesh	0.6278	0.5513	0.5432	0.7060	0.5953	0.6488	0.6761	0.5151	0.5298	0.5557
Telangana	0.6281	0.6447	0.5537	0.5012	0.3986	0.4510	0.6230	0.6203	0.5315	0.4658

Source: Stock to current assets ratio of select sugar units in Andhra Pradesh, Table 4.1.13

Stock to current assets ratio of select sugar units in Telangana, Table 4.1.14

FIGURE 4.1.15

AVERAGE STOCK TO CURRENT ASSETS RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015



Source: Average Stock to Current Assets ratio of sample units in Andhra Pradesh and Telangana 2006-2015, Table 4.1.15

The above graph depicts stock to current asset ratio of the Andhra Pradesh & Telangana state select sugar manufacturing units from 2006-2015. It is observed that from Andhra Pradesh state sugar units have recorded higher proportion of stock in current assets than select sugar units of Telangana state.

4.1.6 CURRENT ASSETS TO TOTAL ASSETS RATIO:

The current assets to total assets ratio depicts the current assets position with its total assets. Lamberson(1995) was used Current assets to total assets ratio as working capital component. It should be worthwhile to observe that how much of that portion of total assets is occupied by the current assets, as current assets are essentially involved in forming working capital and also take an active part in increasing liquidity. From the above table it can be observed that both the state's units average CATA values are very closer to each other and current assets are sufficiently occupied their proportion in Total Assets. CATA is calculated as per the select sample sugar company's annual reports (shown in the appendix from B-I to B-XVIII) and analysed.

TABLE-4.1.16

CURRENT ASSETS TO TOTAL ASSETS RATIO OF SELECT SUGAR UNITS IN ANDHRA PRADESH

(In times)

	Name Of The Companies									
Year	**Andhra Sugars**	**Empee Sugars**	**Jeypore Sugars**	**Kcp Sugars**	**Nava Bharat Sugars**	**Parrys Sugars**	**Prudential Sugars**	**Sagar Sugars**	**Suddalagunta Sugars**	**Average**
2005-06	0.469	0.2258	1.6292	0.8277	0.3504	0.4375	0.5183	0.1893	0.4854	0.5702
2006-07	0.398	0.2734	1.0926	0.79995	0.2282	0.2198	0.5224	1.4152	0.4602	0.6010
2007-08	0.437	0.2443	0.8521	0.6716	0.324	0.1150	0.4533	0.3979	0.4429	0.4375
2008-09	0.4097	0.2393	0.6238	0.7239	0.3241	0.1377	0.5030	0.4046	0.6723	0.4487
2009-10	0.361	0.1634	0.4848	0.6172	0.2472	0.1834	0.5738	1.30244	0.6354	0.5076
2010-11	0.537	0.0607	0.7577	0	0.4959	0.2225	0.6231	0.9927	0.6404	0.4811
2011-12	0.559	0.2996	0.2175	0.8567	0.3989	0.3524	0.6588	1.0859	0.6879	0.5685
2012-13	0.563	0.4450	0.3290	0.9631	0.3792	0.9683	0.6659	1.1198	1.0000	0.7148
2013-14	0.5996	0.3993	0.3957	0.9733	0.2351	1.1787	0.5721	3.6247	0.9846	0.9959
2014-15	0.564	0.0928	0.2633	0.912	0.2288	1.5221	0.6193	5.3558	0.8363	1.1549
Average	0.491	0.2444	0.6646	0.7346	0.3213	0.5337	0.571	1.5888	0.68454	**0.648**

Source: Computed the annual reports of sample sugar units of Andhra Pradesh state from 2006-2015

Table-4.1.16 presents the Current Assets to Total Assets ratio of sugar produced in Andhra Pradesh and the relative position of the selected sugar manufacturing units. Ratio of current Assets to Total Assets indicates the extent of total funds invested for the purpose of working capital and throws light on the importance of current assets of a firm. It should be worthwhile to observe that how much of that portion of total assets is occupied by the current assets, as current assets are essentially involved in forming working capital and also take an active part in increasing liquidity. The highest average CATA ratio was found in Sagar sugars(1.5888) where as Empee Sugars(0.2444) was showing lowest ratio. Overall the study period among select sugar units in Andhra Pradesh Sagar sugars(1.5888) stood at first followed by KCP Sugars(0.7346), Suddalagunta Sugars(0.68454), Jeypore sugars(0.6646), Prudential Sugars(0.571), Parrys sugars(0.5337), Andhra sugars(0.491), Nava Bharat sugars(0.3213), and Empee sugars(0.2444) with respect to carry the highest percentage of current assets to total assets.

TABLE-4.1.17

CURRENT ASSETS TO TOTAL ASSETS RATIO OF SELECT SUGAR UNITS IN TELANGANA

(In times)

	Name Of The Companies									
Year	**Delta Sugars**	**Gayathri Sugars**	**GMR Sugars**	**Kakatiya Sugars**	**Madhucon Sugars**	**Ndsl Sugars**	**Nsl Sugars**	**Shivashakti Sugars**	**Trident Sugars**	**Average**
2005-06	0.6279	0.4479	0.4589	0.2632	0.7764	0.4126	0.2143	6.2666	0.2555	1.0803
2006-07	0.7200	0.3964	0.5808	0.3586	0.3426	0.4908	0.2165	4.8133	0.2646	0.9092
2007-08	0.6504	0.4437	0.3208	0.4535	0.2048	0.4943	0.2105	0.1789	0.2557	0.3569
2008-09	0.6688	0.3305	0.1856	0.4167	0.2275	0.4368	0.2440	3.2539	0.0863	0.6500
2009-10	0.6819	0.2846	0.2457	0.4321	0.1639	0.4150	0.8056	3.5798	1.0641	0.8525
2010-11	0.9760	0.5812	0.2915	0.4114	0.2131	0.5199	0.2356	0.7411	0.7546	0.5249
2011-12	0.8348	0.4471	0.3011	0.5294	0.1167	0.5128	0.1700	1.345	0.6296	0.5170
2012-13	0.8446	0.5828	0.4317	0.5964	0.3265	0.5342	0.1955	1.2258	0.4943	0.5087
2013-14	0.9879	0.9597	0.7363	0.6486	0.2349	0.6922	0.2837	0.7380	0.4478	0.5843
2014-15	0.6808	1.5977	0.6712	0.7246	0.3145	0.8237	0.1504	1.2883	0.4363	0.6731
Average	0.76731	0.6072	0.4223	0.4835	0.0935	0.5332	0.2726	2.3432	0.4689	**0.6656**

Source: Computed from the annual reports of sample sugar units of Telangana State from 2006-2015

Table-4.1.17 presents the Current Assets to Total Assets ratio of select sugar production units in Telangana State and the relative position of units under study. Ratio of current Assets to Total Assets indicates the extent of total funds invested for the purpose of working capital and throws light on the importance of current assets of a firm. It should be worthwhile to observe that how much of that portion of total assets is occupied by the current assets, as current assets are essentially involved in forming working capital and also take an active part in increasing liquidity. The highest average CATA ratio was found in Shivashakti sugars(2.3432) and lowest was found in Madhucon Sugars(0.0935).Overall the study period with respect to current assets to total assets ratio in Telangana State, among the select sugar manufacturing units Shivashakti sugars(2.3432), stood at first followed by Delta sugars(0.76731), Gayathri sugars(0.6072), NDSL sugars(0.5332), Kakatiya sugars(0.4835), Trident sugars(0.4689), GMR sugars(0.4223) and NSL sugars(0.2726) and Madhucon sugars(0.0935) with respect to carry the highest percentage of current assets to total assets as possible without affecting the production.

TABLE-4.1.18

AVERAGE CURRENT ASSETS TO TOTAL ASSETS RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA, 2006-2015

(In times)

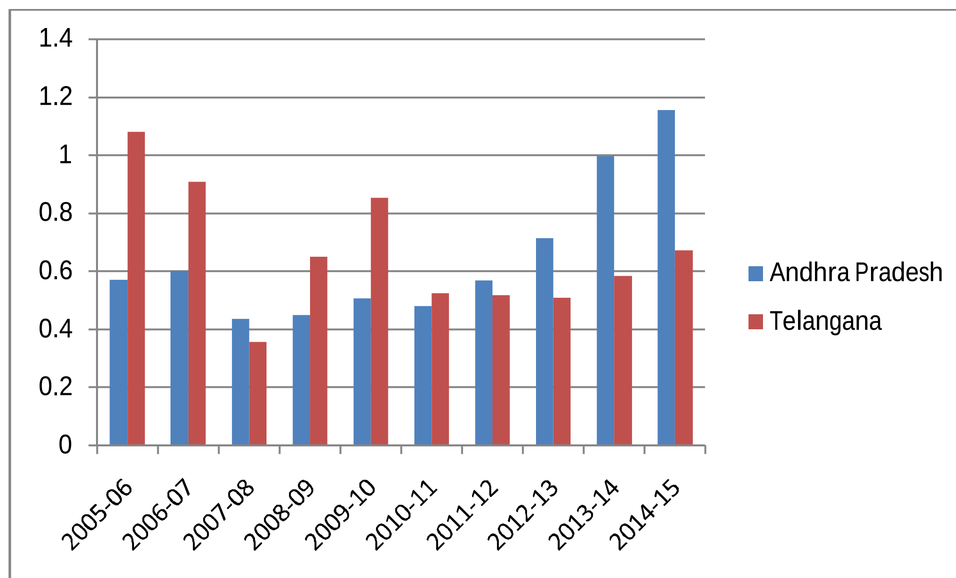
Year	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**
Andhra Pradesh	0.570289	0.601083	0.437567	0.448711	0.507627	0.481111	0.568522	0.714811	0.9959	1.154933
Telangana	1.080367	0.909289	0.356956	0.650011	0.852522	0.524933	0.517011	0.508756	0.584367	0.673167

Source: Current assets to total assets ratio of select sugar units in Andhra Pradesh, Table 4.1.16

Current assets to total assets ratio of select sugar units in Telangana, Table 4.1.17

FIGURE 4.1.18

AVERAGE CURRENT ASSETS TO TOTAL ASSETS RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA, 2006-2015



Source: Average current assets to total assets ratio of sample units in Andhra Pradesh and Telangana , 2006-2015, Table 4.1.18

The above graph shows average current assets to total assets ratio of the Andhra Pradesh & Telangana state selected sugar manufacturing units from 2006-2015. It is observed that from the year 2005-2006, Telangana sugar units have high portion of current assets than units of Andhra Pradesh till 2010-11 where as from 2011-12 to 2014-15 Andhra Pradesh sugar units recorded high portion of currents assets than the sample sugar units of Telangana state.

4.1.7 CURRENT LIABILITIES TO TOTAL ASSETS RATIO

The current liabilities to total assets ratio depicts the current liabilities position with its total assets. It should be worthwhile to observe that how much portion of total liabilities are repaid through total assets CLTA is calculated as per the select sample sugar company's annual reports (shown in the appendix from B-I to B-XVIII) and analysed.

TABLE-4.1.19

CURRENT LIABILITIES TO TOTAL ASSETS RATIO OF SELECT SUGAR UNITS IN ANDHRA PRADESH

(In times)

Name Of The Companies										
Year	**Andhra Sugars**	**Empee Sugars**	**Jeypore Sugars**	**Kcp Sugars**	**Nava Bharat Sugars**	**Parrys Sugars**	**Prudenti al sugars**	**Sagar sugars**	**Suddalagunta sugars**	**Average**
2005-06	0.305	0.2245	0.7103	0.5905	0.1480	0.2944	0.1937	0.7332	0.0912	0.3656
2006-07	0.287	0.1947	0.9044	0.7610	0.1198	0.2620	0.2142	2.2182	0.0683	0.5588
2007-08	0.308	0.2175	0.7726	0.4934	0.1473	0.2118	0.3750	0.4923	0.1053	0.3470
2008-09	0.297	0.1337	0.7184	0.4531	0.1112	0.1678	0.3268	0.6763	0.1599	0.3382
2009-10	0.292	0.0827	0.8392	0.4202	0.0948	0.1731	0.4107	1.4284	0.2268	0.4408
2010-11	0.381	0.0716	0.6848	0	0.1532	0.1115	0.4039	0.8926	0.2286	0.3252
2011-12	0.303	0.0865	0.6071	0.3839	0.1011	0.2971	0.5878	0.8672	0.1552	0.3765
2012-13	0.319	0.2042	0.6398	0.5125	0.0668	0.5984	0.6370	0.9149	0.5541	0.4940
2013-14	0.334	0.2601	0.4918	0.4404	0.0794	1.0281	0.4738	6.0208	0.6384	1.0852
2014-15	0.288	0.0598	0.4279	0.4315	0.0888	1.6021	0.5472	15.102	0.7353	2.1425
Average	0.312	0.1535	0.6796	0.4486	0.1110	0.4746	0.41701	2.9346	0.2963	**0.6473**

Source: Computed the annual reports of sample sugar units of Andhra Pradesh state from 2006-2015

Table 4.1.19 presents the current Liabilities to Total Assets ratio of sugar units in Andhra Pradesh and the relative position of the select sugar units under study. The current liabilities to total assets ratio is a short term solvency ratio that examines how much of a company's assets are made of current liabilities. A high current liability to Total Assets ratio can be negative; this indicates the working capital is negative and raises the short-term potential solvency issues. Companies with low ratio indicate a company with little to no current liabilities. With some notable exceptions, this is normally a good sign of financial health for the company. The lowest average ratio was found in Nava Bharat sugars(0.1110) where the highest ratio was found in Sagar Sugars(2.9346). The analysis brings out the observation that, the Current Liabilities to Total Assets ratio of the select sugar manufacturing Companies were at low maintenance of current liabilities in their organizations. During the study period Nava Bharat sugars(0.1110) stood at first followed by Empee sugars(0.1535), suddalagunta(0.2963), Andhra sugars(0.312), Prudential Sugars(0.4170), KCP sugars(0.4486), Parrys sugars(0.4746), Jeypore sugars(0.6796), Sagar sugars(2.9346) with respect to carry the lowest percentage of current liabilities in total Assets which is normally a good sign of financial health for the company. High current liabilities to total assets ratio can be negative; this indicates the working capital is low and raise the short-term potential solvency issues.

TABLE-4.1.20

CURRENT LIABILITIES TO TOTAL ASSETS RATIO OF SELECT SUGAR UNITS IN TELANGANA

(In times)

Name Of The Companies										
Year	**Delta Sugars**	**Gayathri Sugars**	**GMR Sugars**	**Kakatiya Sugars**	**Madhucon Sugars**	**Ndsl Sugars**	**Nsl Sugars**	**Shivashakti Sugars**	**Trident Sugars**	**Average**
2005-06	0.0704	0.1047	0.1898	0.1699	0.4374	0.1229	0.2756	7.3555	0.1195	0.9828
2006-07	0.2208	0.1255	0.2084	0.1808	0.5288	0.2148	0.2806	5.1333	0.1243	0.7797
2007-08	0.2022	0.1572	0.1050	0.1605	0.7947	0.2882	0.9378	5.7375	0.0133	0.9329
2008-09	0.0623	0.0810	0.1331	0.1162	0.5734	0.1800	0.0060	3.1825	0	0.4816
2009-10	0.1435	0.0833	0.1144	0.0847	0.4993	0.1600	0.2753	3.2899	0.5577	0.5786
2010-11	0.2738	0.5473	0.1151	0.1878	0.7959	0.2234	1.0989	0.5551	0.2471	0.4493
2011-12	0.6958	0.5855	0.0732	0.1474	1.5274	0.7343	0.1550	0.5034	0.1857	0.5119
2012-13	0.7734	0.8247	0.2703	0.1503	1.5672	0.7781	0.2971	0.4669	0.1336	0.5846
2013-14	0.3907	1.0307	0.1937	0.1660	1.5376	0.8362	0.1038	0.4750	0.1635	0.5441
2014-15	0.8373	2.1592	0.2836	0.0912	1.5629	0.6393	0.1783	0.3737	0.1873	0.7014
Average	0.3670	0.5699	0.1686	0.1455	0.9825	0.4177	0.3608	2.7073	0.1732	**0.6546**

Source: Computed from the annual reports of sample sugar units of Telangana State from 2006-2015

Table-4.1.20 presents the current Liabilities to Total Assets ratio of sugar units in Telangana and the relative position of the select units under study. The current liabilities to total assets ratio is a short term solvency ratio that examines how much of a company's assets are made of current liabilities. Over the period of analysis, out of the nine selected sugar manufacturing units the ratio of Current Liabilities to Total Assets of six companies (Delta sugars, Gayathri sugars, Madhucon sugars, NDSL sugars, Shivashakti sugars and NSL sugars) were increasing and the remaining three companies (GMR sugars, Kakatiya sugars and Trident sugars) ratio values were decreasing. Concerned about the ratio, the six companies (Delta sugars, Gayathri sugars, Madhucon sugars, NDSL sugars, Shivashakti sugars and NSL sugars) because of increasing ratio values will increase their short-term solvency and it becomes to decrease the portion of working capital .The lowest average ratio was found in Kakatiya sugars(0.1455). Overall the study period with respect to Current Liabilities to total Assets ratio in Telangana out of the nine sugar manufacturing units Kakatiya sugars(0.1455) stood at first followed by GMR sugars(0.1686), Trident sugars(0.1732), NSL sugars(0.3608), Delta sugars(0.3670), NDSL sugars(0.4177), Gayathri sugars(0.5699), Madhucon sugars(0.9825), Shivashakti sugars(2.7073) with respect to carry the lowest percentage of current liabilities in total Assets which is normally a good sign of financial health for the company.

TABLE 4.1.21

AVERAGE CURRENT LIABILITIES TO TOTAL ASSETS RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA, 2006-2015

(In times)

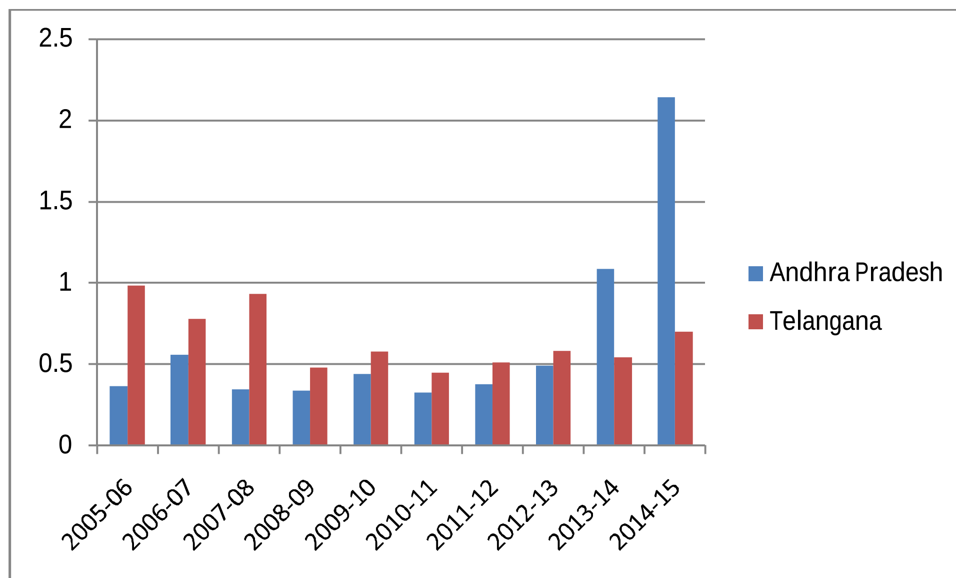
Years	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**
Andhra Pradesh	0.3656	0.5588	0.3470	0.3382	0.4408	0.3252	0.3765	0.4940	1.0852	2.1425
Telangana	0.9828	0.7797	0.9329	0.4816	0.5786	0.4493	0.5119	0.5846	0.5441	0.7014

Source: current liabilities to total assets ratio of select sugar units in Andhra Pradesh, Table 4.1.19

Current liabilities to total assets ratio of select sugar units in Telangana, Table 4.1.20

FIGURE 4.1.21

AVERAGE CURRENT LIABILITIES TO TOTAL ASSETS RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA, 2006-2015



Source: Average Current liabilities to total assets ratio of sample units in Andhra Pradesh and Telangana 2006-2015, Table 4.1.21

The graph shows the average current liabilities to total assets ratio of the Andhra Pradesh & Telangana state selected sugar manufacturing units from 2006-2015. Telangana sugars units recorded consistency in current liabilities position during the study period. The select sugar units of Andhra Pradesh state has increase in current liabilities extensively in the year 2013-14 (1.0852 times) and 2014-2015(2.1425 times). Hence short term liability position of select units of Andhra Pradesh was not efficient than sugar companies of Telangana state.

4.1.8 CURRENT ASSETS TURNOVER RATIO

Current Assets Turnover Ratio indicates that the current assets are turned over in the form of sales more number of times. A high current assets turnover ratio indicates the capability of the organization to achieve maximum sales with the minimum investment in current assets. Higher the current assets turnover ratio better will be the situation. Current assets turnover ratio has been calculated as per the select sample sugar company's annual reports (shown in the appendix from B-I to B-XVIII) and analysed.

TABLE-4.1.22

CURRENT ASSETS TURNOVER RATIO OF SELECT SUGAR UNITS IN ANDHRA PRADESH

(In times)

Name Of The Companies										
Year	**Andhra Sugars**	**Empee Sugars**	**Jeypore Sugars**	**Kcp Sugars**	**Nava Bharat Sugars**	**Parrys Sugars**	**Prudential Sugars**	**Sagar Sugars**	**Suddalagunta Sugars**	**Average**
2005-06	0.585	0.2215	0.5687	0.4680	0.4123	0.5248	1.7687	0.07603	0.0084	0.5148
2006-07	0.45	0.1556	0.7878	0.5249	0.3616	0.3280	2.1063	0.3515	0.0198	0.5650
2007-08	0.685	0.310	1.1173	0.6713	0.4299	0.3300	2.5035	0.1615	0.0151	0.6915
2008-09	0.516	0.4195	1.04622	0.8883	0.4063	0.6094	1.5408	0.1539	0.0630	0.6270
2009-10	0.455	0.7955	0.7179	0.5616	0.4199	0.5385	1.7108	1.0512	0.0789	0.7032
2010-11	0.880	0.7158	1.1486	0	0.8987	0.3524	1.7119	0.5881	0.0789	0.7082
2011-12	0.686	0.4700	0.2076	0.8114	0.9219	0.5047	1.2760	0.8500	0.1030	0.6478
2012-13	0.632	0.7269	0.8101	0.6450	0.8204	1.8551	1.8058	0.9597	0.0535	0.9231
2013-14	0.807	0.8092	0.7868	0.9695	0.5438	1.1989	1.9373	0.5712	0.1827	0.8673
2014-15	0.737	0.3232	0.6631	0.7643	0.5213	1.007	1.2837	0.333	0.7238	0.7062
Average	0.643	0.4948	0.785448	0.6304	0.5736	0.7250	1.7644	0.5096	0.1327	**0.6954**

Source: Computed the annual reports of sample sugar units of Andhra Pradesh state from 2006-2015

Table-4.1.22 presents the current assets turnover ratio of sugar units in Andhra Pradesh and the relative position of the select sugar manufacturing units under study. The current assets turnover ratio shows the number of times the current assets are being turned over in a particular period. It also shows how well the current assets are being used in the business. A high ratio indicates high degree of efficiency in asset utilization. The analysis brings out the observation that, the current assets turnover Ratio of the selected sugar manufacturing companies were at highest maintenance of current assets utilization in their organizations. Prudential sugars because of increasing ratio values will increase their current assets utilization in well manner. The highest average ratio was found in Prudential sugars (1.7644). The analysis brings out the observation that, the current assets turnover ratio of the selected sugar manufacturing companies were at highest maintenance of current assets utilization in their organizations. During the study period with respect to current assets turnover ratio in Andhra Pradesh among the sugar manufacturing units Prudential sugars(1.7644) stood at first followed by, Jeypore Sugar(0.7854), Parrys Sugars(0.7250), Andhra Sugars(0.643), KCP Sugars(0.6304), Navabharat Sugars(0.5736), Sagar Sugars(0.5096), Empee Sugars(0.4948), Suddalagunta Sugars(0.1327) with respect to efficient current assets utilization.

TABLE-4.1.23

CURRENT ASSETS TURNOVER RATIO OF SELECT SUGAR UNITS IN TELANGANA

(In Times)

	Name Of The Companies									
Year	**Delta Sugars**	**Gayathri Sugars**	**GMR Sugars**	**Kakatiya Sugars**	**Madhucon Sugars**	**Ndsl Sugars**	**Nsl Sugars**	**Shivashakti Sugars**	**Trident Sugars**	**Average**
2005-06	1.3138	0.5069	1.5302	0.2840	1.1637	0.8371	0.0077	0.2043	5.7368	1.2871
2006-07	0.8470	0.5308	1.4351	0.3738	0.4357	0.9732	0.0122	0.2198	5.7105	1.1709
2007-08	0.8557	0.9498	2.0886	0.4300	0.1910	1.0728	0.1382	0.3010	0	0.6696
2008-09	1.3570	0.5678	1.8212	0.3460	0.1898	1.1707	1.3009	0.2593	0	0.7791
2009-10	1.0769	0.5790	0.9195	0.4734	0.1287	1.0348	0.0635	0.4143	0.8526	0.6158
2010-11	0.4280	0.9949	1.1602	0.5496	0.1576	0.4886	0.5292	0.4061	0.8375	0.6168
2011-12	0.7739	0.3185	1.6506	0.4769	-0.0780	0.9219	0.0185	0.3947	0.5934	0.5633
2012-13	0.9913	0.4739	2.1122	0.5370	-0.3605	1.0208	0.0166	0.3186	0.573	0.6314
2013-14	0.6352	0.7340	2.6391	0.5687	-0.3309	1.3847	0.0376	0.4071	0.5608	0.7373
2014-15	0.8736	0.6277	2.8362	0.8152	-0.3451	1.5739	0.0172	0.3652	0.63129	0.8216
Average	0.9152	0.6283	1.8192	0.4855	0.1152	1.0478	0.21416	0.3290	1.5496	**0.7892**

Source: Computed from the annual reports of sample sugar units of Telangana State from 2006-2015

Table-4.1.23 presents the current Assets turnover ratio of sugar produced in the Telangana State and the relative position of the selected sugar manufacturing units under study. The current assets turnover Ratio shows the number of times the current assets are being turned over in a stated period. It also shows how well the current assets are being used in the business. A high ratio indicates high degree of efficiency in asset utilization. Out of select sugar manufacturing units of Telangana the current assets turnover ratio of four companies (GMR sugars, NDSL sugars, Trident sugars and Delta sugars) were increased and the remaining five companies (Kakatiya, Madhucon, NSL, Gayathri and Shivashakti sugars) ratio values during the study period were decreased. Concerned about the ratio, the four companies (GMR sugars, NDSL sugars, Trident sugars and Delta sugars) because of increasing ratio values will increase their current assets utilization in well manner. The highest average ratio was found in GMR sugars. With reference to optimum utilization of current assets towards sales among the select units GMR sugars (1.8192), stood at first followed by Trident sugars(1.5496), NDSL sugars(1.0478), Delta sugars (0.9152), Gayathri sugars(0.6283), Kakatiya sugars (0.4855), Shivashakti sugars(0.3290), NSL sugars (0.2141) and Madhucon sugars(0.1152).

Table-4.1.24

AVERAGE CURRENT ASSETS TURNOVER RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015

(In times)

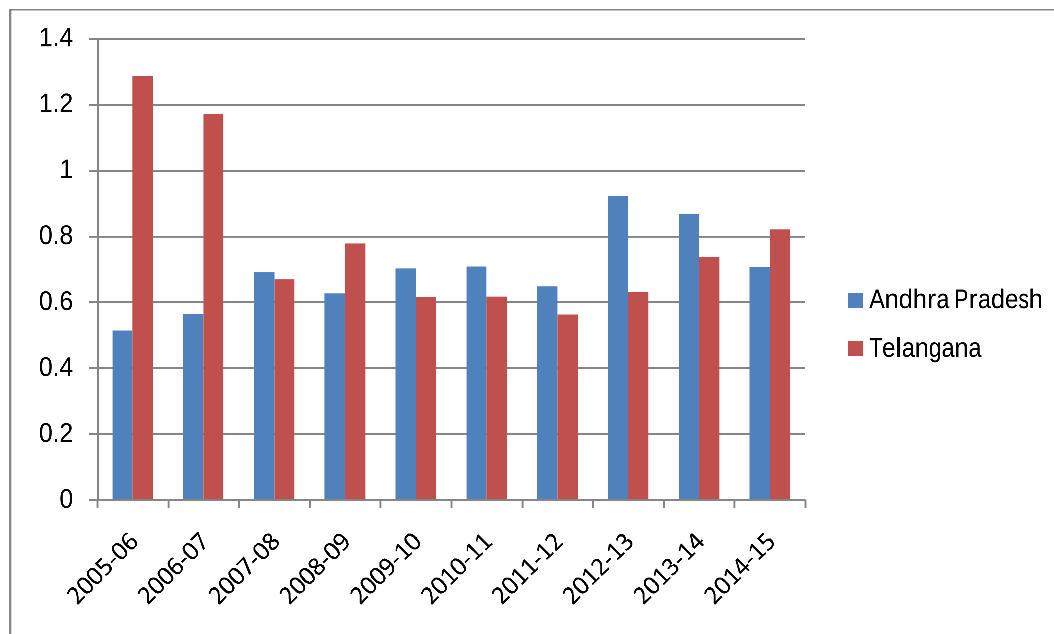
Years	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**
Andhra Pradesh	0.5148	0.5650	0.6915	0.6270	0.7032	0.7082	0.6478	0.9231	0.8673	0.7062
Telangana	1.2871	1.1709	0.6696	0.7791	0.6158	0.6168	0.5633	0.6314	0.7373	0.8216

Source: current assets turnover ratio of select sugar units in Andhra Pradesh, Table 4.1.22

current assets turnover ratio of select sugar units in Telangana, Table 4.1.23

FIGURE 4.1.24

AVERAGE CURRENT ASSETS TURNOVER RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015



Source: Average Current assets turnover ratio of sample units in Andhra Pradesh and Telangana 2006-2015, Table 4.1.24

The graph shows average current assets turnover ratio of the Andhra Pradesh & Telangana state selected sugar manufacturing units from 2005-2015. It observes that from the year 2005-2006, there is an increasing trend for two financial years in the Telangana state manufacturing units which further showed a declining trend. The average current assets turnover indicates inefficiency of select firm in utilization of current assets during the period.

4.1.9 FIRM SIZE:

Firm size indicates the size of the firm in terms of its total assets. Senthilmani (2013) used firm size as controlled variable. High ratio indicates the firm is having high capacity of production and sales. It is calculated as per the select sample sugar company's annual reports (shown in the appendix from B-I to B-XVIII) and analysed.

TABLE-4.1.25

FIRM SIZE OF SELECT SUGAR MANUFACTURING UNITS IN ANDHRA PRADESH

(In crores)

Name Of The Companies										
Year	**Andhra Sugars**	**Empee Sugars**	**Jeypore Sugars**	**Kcp Sugars**	**Nava Bharat Sugars**	**Parrys Sugars**	**Prudential Sugars**	**Sagar Sugars**	**Suddalagunta Sugars**	**Average**
2005-06	9.6355	8.7789	9.2290	9.4466	9.6249	8.0491	8.8597	7.9309	8.0803	8.8483
2006-07	9.7041	8.8464	9.3789	9.5349	9.6500	8.7793	8.9571	7.5658	8.0845	8.9445
2007-08	9.7743	9.0048	9.3837	9.4824	9.7504	7.7764	8.8818	9.0733	8.0166	9.0159
2008-09	9.6794	8.7896	9.2875	9.3528	9.9584	8.6292	8.7263	9.4243	8.6365	9.1648
2009-10	9.7800	8.8146	9.2526	9.2630	9.1065	8.5349	8.8587	9.1301	8.7811	9.0579
2010-11	9.7613	8.8166	9.3834	9.3974	10.0687	8.5428	8.9080	9.0826	8.7811	9.1935
2011-12	9.6998	8.6794	9.3181	9.3132	10.0369	8.7562	8.9308	8.9530	8.8873	9.1749
2012-13	9.8794	9.4348	9.4809	8.6191	9.9864	8.8553	9.0508	8.9530	8.0863	9.1495
2013-14	7.2518	8.4418	9.1035	10.352	7.2835	8.2836	8.2731	9.8361	8.6383	8.6070
2014-15	8.2735	9.0181	8.2035	9.1935	9.3518	7.0351	9.4327	9.3525	9.4732	8.8148
Average	9.3439	8.862	9.202	9.395	9.4817	8.324	8.8879	8.9301	8.5465	**8.9971**

Source: Computed the annual reports of sample sugar units of Andhra Pradesh state from 2006-2015

Table-4.1.25 presents the firm size of sugar companies in Andhra Pradesh and the relative position of the selected sugar manufacturing units under the study. The firm size measures the size of the firm in terms of its assets and its value. Bigger the size of the firm they can produce more number of products which will increases the profits through increased sales volume. It shows how effectively a firm can produce maximum number of sales volume and thereby increases its profits. The highest average ratio (i.e., 9.4817) was found in Nava Bharat sugars. The analysis brings out the observation that, Firm size of the select sugar manufacturing companies were at safest by producing more number of products during the study period. With respect to Firm size of select units of Andhra Pradesh, Nava Bharat sugars(9.4817) ,stood at first followed by, KCP Sugars(9.395), Andhra Sugars (9.3439), Jeypore Sugars(9.202), Sagar Sugars (8.9301), Prudential sugars (8.8879), Empee Sugars (8.862), Suddalagunta Sugars 8.5465 and Parrys Sugars(8.324).

TABLE-4.1.26

FIRM SIZE OF SELECT SUGAR UNITS IN TELANGANA

(in crores)

	Name Of The Companies									
Year	**Delta Sugars**	**Gayathri Sugars**	**GMR Sugars**	**Kakatiya Sugars**	**Madhucon Sugars**	**Ndsl Sugars**	**Nsl Sugars**	**Shivashakti Sugars**	**Trident Sugars**	**Average**
2005-06	8.7406	8.8593	9.4739	9.1589	8.5125	5.9688	7.6471	8.0927	8.1897	8.2937
2006-07	8.7206	8.9326	9.4089	9.1036	8.5079	6.1852	7.6770	8.1399	8.6491	8.3694
2007-08	8.7168	8.9705	9.2840	9.1522	8.2786	9.2417	7.7050	8.2154	8.5585	8.6803
2008-09	8.9252	8.7936	9.1834	9.2370	8.7220	9.1442	7.9124	8.1717	8.6649	8.7504
2009-10	8.7933	8.8651	9.1033	9.0915	8.9980	9.0464	7.1445	8.1989	8.8945	8.6817
2010-11	8.6402	8.7816	9.3091	9.0034	8.9303	8.9070	7.2832	8.1644	8.7752	8.6438
2011-12	8.9236	9.0375	9.5241	9.2281	9.0405	9.1747	8.0295	9.2570	9.0871	9.0335
2012-13	8.9714	9.3403	9.7946	9.2656	9.3603	9.2287	8.1305	9.2991	9.0554	9.1606
2013-14	8.8040	8.9476	9.3852	9.1550	8.7938	8.3621	7.6912	8.4424	8.7343	8.7017
2014-15	8.7203	8.6831	9.0983	9.1055	8.7825	9.6530	8.9016	8.6892	8.9172	8.9500
Average	8.8039	8.9475	9.3851	9.1550	8.7937	8.3620	7.6911	8.4423	8.7343	**8.7265**

Source: Computed from the annual reports of sample sugar units of Telangana State from 2006-2015

Table-4.1.26 presents the firm size of sugar companies produced in the Telangana State and the relative position of the selected sugar manufacturing units under study. It measures the efficiency of firm to produce more number of products and thereby increases its profits. Over the period of analysis, out of the nine selected sugar manufacturing units the firm size of all the selected companies (Delta sugars, Gayathri sugars, GMR sugars, Kakatiya sugars, Madhucon sugars, NDSL sugars, NSL sugars, Shivashakti sugars and Trident sugars) values during the study period were increased. Concerned about the ratio, all the nine companies because of increasing ratio values will effectively produce more number of products to produce greater amounts of net income. The highest average ratio (i.e., 9.3851) was found in GMR sugars. The analysis brings out the observation that, Firm size of the selected sugar manufacturing companies were at safest by producing more number of products. Out of the nine sugar manufacturing units of Telangana, GMR sugars9.3851 stood at first followed by Kakatiya sugars(9.1550), Gayatri sugars(8.9475) , Delta sugars(8.8039), Madhucon sugars(8.7937), Trident sugars(8.7343), Shivashakti sugars(8.4423), NDSL sugars(8.3620) and NSL sugars(7.6911) with respect to highest Firm size during the study period.

TABLE-4.1.27

AVERAGE FIRM SIZE OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015

(In crores)

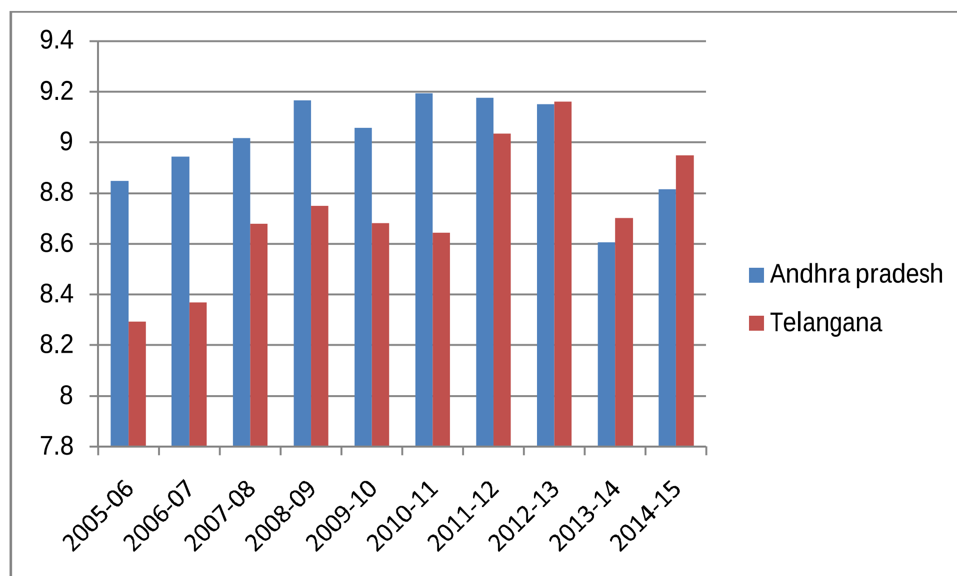
Years	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**
Andhra pradesh	8.8483	8.9445	9.0159	9.1648	9.0579	9.1935	9.1749	9.1495	8.6070	8.8148
Telangana	8.2937	8.3694	8.6803	8.7504	8.6817	8.6438	9.0335	9.1606	8.7017	8.9500

Source: firm size of select sugar units in Andhra Pradesh, Table 4.1.25

Firm size of select sugar units in Telangana, Table 4.1.26

FIGURE 4.1.27

AVERAGE FIRM SIZE OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015



Source: Average firm size of sample units in Andhra Pradesh and Telangana 2006-2015, Table 4.1.27

The graph signifies firm size of the Andhra Pradesh & Telangana state selected sugar manufacturing units from 2006-2015. It is observed that from the year 2005-2006, there is a constant increase in select units of Andhra Pradesh. Whereas Telangana sugar manufacturing units, has recorded fluctuating trend. Thus, Andhra Pradesh state sample units has maintained better firm size than the select units of Telangana during the study period.

4.1.10 TOTAL ASSETS TURNOVER RATIO:

This ratio establishes a relationship between total assets and sales. This ratio enables to know the efficient utilization of total assets of a business. High ratio indicates efficient utilization and ratio less ratio indicates under utilization. Total assets turnover has been calculated as per the select sample sugar company's annual reports (shown in the appendix from B-I to B-XVIII) and analysed.

TABLE-4.1.28
TOTAL ASSETS TURNOVER RATIO OF SELECT SUGAR UNITS IN ANDHRA PRADESH
(In times)

Name Of The Companies										
Year	**Andhra Sugars**	**Empee Sugars**	**Jeypore Sugars**	**Kcp Sugars**	**Nava Bharat Sugars**	**Parrys Sugars**	**Prudential Sugars**	**Sagar Sugars**	**Suddalagunta Sugars**	**Average**
2005-06	1.248	3.6962	0.3490	0.5654	1.1765	1.1996	0.9168	0.4016	0.15	1.0781
2006-07	1.131	6.6803	0.7211	0.6562	1.5845	1.4924	1.1003	0.2483	0.22	1.5371
2007-08	1.569	6.4231	1.3112	0.9994	1.32352	2.8677	1.1350	0.4058	0.17	1.8005
2008-09	1.259	3.2218	1.6771	1.2270	1.2535	4.4257	0.7751	0.3804	0.45	1.6299
2009-10	1.261	2.5582	1.4807	0.9099	1.6987	2.9356	0.9816	0.8071	0.89	1.5025
2010-11	1.637	1.3151	1.5158	0.793	1.8113	1.5838	1.0668	0.5924	1.55	1.3183
2011-12	1.227	1.4333	0.9542	0.9470	2.3111	1.43201	0.8406	0.7827	2.49	1.3797
2012-13	1.122	2.2055	2.4620	0.6696	2.1633	1.9158	1.2024	0.8570	5.05	1.9608
2013-14	1.345	3.1839	1.9880	0.99611	2.3124	1.0170	0.9372	0.1575	9.60	2.3930
2014-15	1.305	1.3734	2.5179	0.8379	2.2779	0.6621	1.8362	0.0622	10.9	2.4191
Average	1.311	3.2090	1.4977	0.7809	1.7913	1.9532	1.0792	0.4695	3.147	**1.6962**

Source: Computed the annual reports of sample sugar units of Andhra Pradesh state from 2006-2015

Table-4.1.28 presents the Total Assets Turnover Ratio of sugar production units in Andhra Pradesh and the relative position of the select units under study. The Assets turnover ratio measures how effectively a company can generate sales from its assets by comparing net sales with average total assets. A higher ratio is always more favorable. Higher turnover ratio indicates that the company is using its assets more efficiently. Lower ratio means that the company is not using its assets efficiently to generate sales from its assets. The highest average ratio (i.e., 3.2090) was found in Empee sugars. The analysis brings out the observation that, Assets Turnover ratio of the select sugar Companies were good at managing of their assets to generate sales (except Suddalagunta Sugars). The assets turnover ratio of sugar units in Andhra Pradesh, shows that Empee Sugars(3.2090)stood at first followed by Parrys Sugars(1.9532), Navabharat Sugars(1.7913), Jeypore Sugars(1.4977), Andhra Sugars(1.311), KCP Sugars(0.7809), Sagar sugars(0.4695), and Suddalagunta sugars (0.0396) during the study period.

TABLE-4.1.29

TOTAL ASSETS TURNOVER RATIO OF SELECT SUGAR UNITS IN TELANGANA

(In times)

	Name Of The Companies									
Year	**Delta Sugars**	**Gayathri Sugars**	**GMR Sugars**	**Kakatiya Sugars**	**Madhucon Sugars**	**Ndsl Sugars**	**Nsl Sugars**	**Shivashakti Sugars**	**Trident Sugars**	**Average**
2005-06	0.8250	1.1316	0.7023	1.0790	1.4988	0.3454	0.0017	0.0326	0.027	0.6270
2006-07	0.6099	1.3390	0.8336	1.0425	1.2718	0.4777	0.0026	0.0456	0.008	0.6250
2007-08	0.5566	2.1402	0.6701	0.9483	0.9327	0.5303	2.1344	0.0538	0.58	0.9496
2008-09	0.9076	1.71773	0.3380	0.8304	0.8343	0.5114	1.2934	0.0796	0.81	0.8136
2009-10	0.7344	2.0342	0.2259	1.0955	0.7852	0.4294	0.0511	0.1157	0.77	0.6934
2010-11	0.4177	1.7117	0.3382	1.3356	0.7397	0.2540	0.1247	0.3010	0.86	0.6758
2011-12	0.6460	0.7125	0.4970	0.9008	0.6679	0.4728	0.0031	0.2933	0.735	0.5476
2012-13	0.8373	0.81320	0.9118	0.9002	1.1042	0.5453	0.0032	0.25998	0.675	0.6722
2013-14	0.7918	0.76483	0.8646	0.8768	1.4087	0.5458	0.2511	0.3004	0.557	0.7067
2014-15	0.7926	0.3928	0.4639	1.1252	1.0971	0.5018	0.4812	0.2835	0.2	0.5931
Average	0.7118	1.2757	0.5845	1.0134	1.0340	0.4613	0.4341	0.1765	0.5222	**0.6904**

Source: Computed from the annual reports of sample sugar units of Telangana State from 2006-2015

Table-4.1.29 presents the Assets Turnover ratio of sugar firms in Telangana State and the relative position of the select sugar manufacturing units under study. The total assets turnover ratio measures how effectively a company can generate sales from its assets by comparing net sales with average total assets. A higher ratio is always more favorable. Over the period of analysis, out of the nine select sugar units the total asset turnover ratio of four companies (Trident sugars, Kakatiya sugars ,Gayathri sugars and Madhucon sugars) was high and the remaining five companies (Delta sugars, GMR sugars, NDSL sugars, NSL sugars and Shivashakti sugars) ratio values during the study period were lower. Concerned about the ratio, the four companies (Trident sugars, Kakatiya sugars ,Gayathri sugars and Madhucon sugars) because of increasing ratio values will effectively managing its assets to generate greater amounts of sales. The analysis brings out the observation that, Assets Turnover ratio of the selected sugar companies were good at managing their Assets to generate sales (except Shivashakti sugars). Overall the study period with respect to Assets Turnover ratio in Telangana State, out of the nine sugar manufacturing units Trident sugars(16.8025) stood at first followed by Gayatri Sugars(1.2758), Madhucon Sugars(1.0341), Kakatiya Sugars(1.0134), Delta Sugars(0.7029), GMR Sugars(0.5979), NDSL Sugars(0.4569), NSL Sugars(0.4289) and Shivashakti Sugars(0.1765).

TABLE-4.1.30

AVERAGE TOTAL ASSETS TURNOVER RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015

(In times)

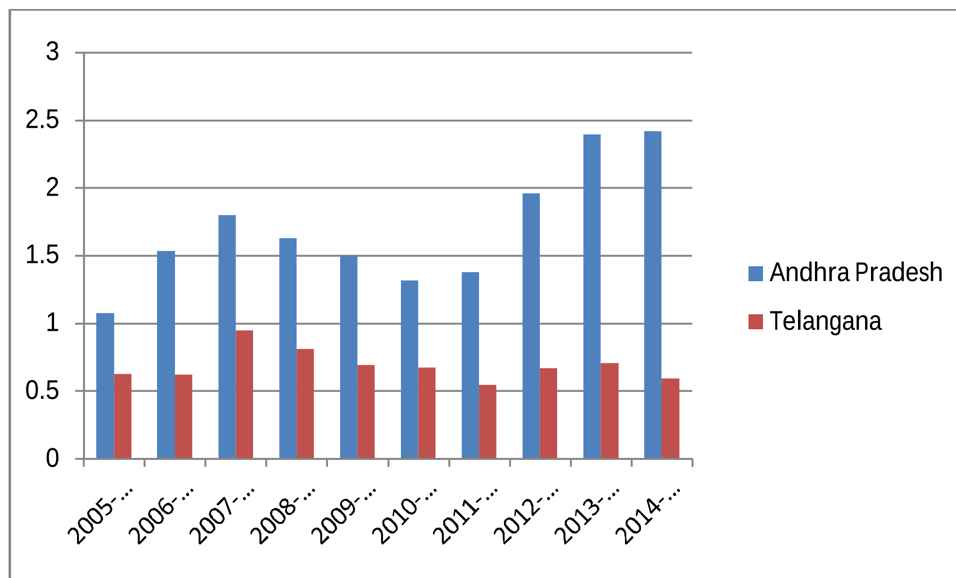
Years	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**
Andhra Pradesh	1.0781	1.5371	1.8005	1.6299	1.5025	1.3183	1.3797	1.9608	2.3930	2.4191
Telangana	0.6270	0.6250	0.9496	0.8136	0.6934	0.6758	0.5476	0.6722	0.7067	0.5931

Source: Total assets turnover ratio of select sugar units in Andhra Pradesh, Table 4.1.28

Total assets turnover ratio of select sugar units in Telangana, Table 4.1.29

FIGURE 4.1.30

AVERAGE TOTAL ASSETS TURNOVER RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015



Source: Average Total Assets turnover ratio of sample units in Andhra Pradesh and Telangana 2006-2015, Table 4.1.30

The graph depicts average total assets turnover ratio of the Andhra Pradesh & Telangana state selected sugar manufacturing units from 2006-2015. The select sugar companies in Andhra Pradesh showing efficiency utilizing their assets Thus, Andhra Pradesh state units has maintained effective assets in generating revenue during the study period. The select units of Telangana are not utilizing their asset to generate revenue showing declining trend.

4.1.11 INVENTORY IN DAYS:

Inventory conversion period reports us about the average time to convert our total inventory into sales. It is relationship between total days in year and inventory turnover ratio. In other words, it measures the length of time on average between the acquisition and sale of merchandise. Jose(1996), Gopinathan(2012) and Chatterjee, (2012) has used Inventory in days as major component of working capital. It has been calculated as per the select sample sugar company's annual reports (shown in the appendix from B-I to B-XVIII) and analysed.

TABLE-4.1.31

INVENTORY IN DAYS OF SELECT SUGAR MANUFACTURING UNITS IN ANDHRA PRADESH

(In days)

	Name Of The Companies									
Year	**Andhra Sugars**	**Empee Sugars**	**Jeypore Sugars**	**Kcp Sugars**	**Nava Bharat Sugars**	**Parrys Sugars**	**Prudential Sugars**	**Sagar Sugars**	**Suddalagunta Sugars**	**Average**
2005-06	157	200	188	145	106	144	137	48	125	139
2006-07	120	35	248	159	91	34	124	46	129	110
2007-08	186	29	361	205	117	62	50	39	138	132
2008-09	119	86	348	261	112	148	97	164	68	156
2009-10	83	131	237	164	88	157	148	75	43	125
2010-11	181	206	361	373	99	109	128	93	138	188
2011-12	146	223	64	254	110	138	109	99	89	137
2012-13	127	111	274	190	95	664	128	117	102	201
2013-14	180	158	273	302	107	335	105	56	128	183
2014-15	160	42	228	223	109	309	117	92	139	158
Average	146	122	258	228	103	210	114	83	110	**153**

Source: Computed the annual reports of sample sugar units of Andhra Pradesh state from 2006-2015

Table-4.1.31 presents the Inventory days of sugar companies in Andhra Pradesh and the relative position of the select sugar manufacturing units under study. The Inventory days gives investors an idea of how long it takes a company to turn its inventory into sales. It is an efficiency measure of number of days the company holds its inventory before selling it. The ratio measures the number of days funds are tied up in inventory. Shorter number of day's inventory outstanding means the company can convert its inventory into cash sooner. Longer number of days represents the company will have more inventory with it and it takes longer time to convert inventory into sales. Over the period of analysis, out of the nine select sugar manufacturing units the number of days of inventory in three companies (Jeypore sugars, KCP sugars and Parrys sugars) were not able to convert the inventory into cash faster than the remaining six companies in Andhra Pradesh (i.e., Andhra sugars, Empee, Nava Bharat, Prudential, Sagar, and Suddalagunta sugars) during the study period were low. Lower days values will depicts that the companies are effectively managing its Inventory and can able to convert its inventory with a short period of time. Overall the study period with respect to Inventory day's sugar companies in Andhra Pradesh, out of the six sugar manufacturing units Sagar sugars(83 days) stood at first followed by Nava Bharat sugars(103 days), Suddalagunta sugars(110 days), Prudential sugars(114 days), Empee sugars(122 days), Andhra sugars(146 days), Parrys sugars (210 days), KCP sugars(228 days) and Jeypore sugars(258 days).

TABLE-4.1.32

INVENTORY IN DAYS OF SELECT SUGAR UNITS IN TELANGANA

(In days)

	Name Of The Companies									
Year	**Delta Sugars**	**Gayathri Sugars**	**GMR Sugars**	**Kakatiya Sugars**	**Madhucon Sugars**	**Ndsl Sugars**	**Nsl Sugars**	**Shivashakti Sugars**	**Trident Sugars**	**Average**
2005-06	111	159	93	137	90	67	70	191	89	112
2006-07	97	160	99	133	55	30	136	39	119	96
2007-08	79	315	72	55	87	96	95	135	132	118
2008-09	86	199	86	34	69	75	107	50	67	86
2009-10	58	193	56	123	107	55	72	30	125	91
2010-11	108	323	75	123	79	86	83	241	73	132
2011-12	128	105	103	164	86	88	93	39	139	105
2012-13	54	156	86	145	61	93	81	31	68	86
2013-14	105	245	63	191	72	69	95	68	105	113
2014-15	109	197	56	196	86	72	103	43	87	105
Average	94	205	79	130	79	73	94	87	100	**105**

Source: Computed from the annual reports of sample sugar units of Telangana State from 2006-2015

Table-4.1.32 presents the Inventory days of sugar companies produced in the Telangana State and the relative position of the selected sugar manufacturing units under study. The Inventory days gives investors an idea of how long it takes a company to turn its inventory into sales. It is an efficiency measure of average number of days the company holds its inventory before selling it. The ratio measures the number of days funds are tied up in inventory. Shorter number of days inventory outstanding means the company can convert its inventory into cash sooner. Longer number of days represents the company will have more inventory with it and it takes longer time to convert inventory into sales. Over the period of analysis, out of the nine selected sugar manufacturing units the number of days of Inventory of four companies (GMR sugars, Madhucon sugars, NDSL sugars and Shivashakti sugars) were taking less than 90 days to convert inventory in to cash. The remaining five companies (Trident sugars, Kakatiya sugars, Gayathri sugars, NSL sugars and Delta sugars) average ratio values during the study period were observed more than 90 days; The highest number of days (i.e., 205 days) was found in Gayathri sugars . Concerned about the ratio, these five companies (Trident sugars, Kakatiya sugars, Gayathri Sugars, NSL sugars And Delta sugars) because of high conversion time period has been depicted by these companies, which are in-effectively managing its Inventory and can able to convert its inventory with a long period of time. The analysis brings out the observation that, the Inventory days of the selected sugar manufacturing the four companies (GMR sugars, Madhucon sugars, NDSL sugars and Shivashakti sugars) were efficient at converting its inventory into cash sooner. Overall the study period with respect to Inventory days sugar companies in Telangana State, out of the nine sugar manufacturing units NDSL sugars(73 days) stood at first followed by Madhucon sugars(79 days), GMR sugars(79 days) ,Shivashakti sugars(87 days), NSL sugars(94 days), Delta sugars(94 days), Trident sugars(100 days), Kakatiya sugars(130 days) and Gayatri sugars(205 days).

TABLE-4.1.33

AVERAGE INVENTORY IN DAYS OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015

(In days)

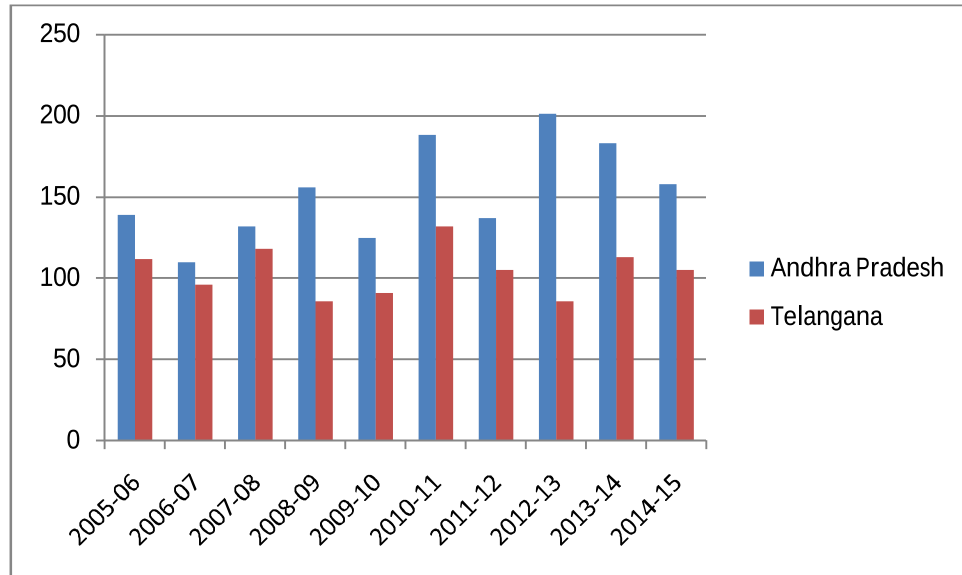
Years	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**
Andhra Pradesh	139	110	132	156	125	188	137	201	183	158
Telangana	112	96	118	86	91	132	105	86	113	105

Source: Inventory in days of select sugar units in Andhra Pradesh, Table 4.1.31

Inventory in days of select sugar units in Telangana, Table 4.1.32

FIGURE 4.1.33

AVERAGE INVENTORY IN DAYS OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015



Source: Average Quick ratio of sample units in Andhra Pradesh and Telangana 2006-2015, Table 4.1.33s

The graph shows average inventory in days of the Andhra Pradesh & Telangana state's selected sugar manufacturing units from 2006-2015. The select sugar units of Andhra Pradesh due to high investment in stock indicating inefficient management of inventory and slow movement of inventory during the study period. Telangana sample units are showing better performance in converting their inventory in cash.

4.1.12 ACCOUNT RECEIVABLES IN DAYS:

Days sales outstanding (DSO) is a measure of the average number of days that a company takes to collect revenue after a sale has been made. Habiba(2013), Chatterjee(2012), Gopinathan(2012) has considered Days Sales outstanding in their studies as working capital component. DSO is often determined on a monthly, quarterly or annual basis and can be calculated by dividing the amount of accounts receivable during a given period by the total value of credit sales during the same period, and multiplying the result by the number of days in the period measured. Days in Receivables has been calculated as per the select sample sugar company's annual reports (shown in the appendix from B-I to B-XVIII) and analysed.

TABLE-4.1.34

ACCOUNTS RECEIVABLES IN DAYS OF SELECT SUGAR UNITS IN ANDHRA PRADESH

(In days)

	Name Of The Companies									
Year	**Andhra Sugars**	**Empee Sugars**	**Jeypore Sugars**	**Kcp Sugars**	**Nava Bharat Sugars**	**Parrys Sugars**	**Prudential Sugars**	**Sagar Sugars**	**Suddalagunta Sugars**	**Average**
2005-06	12	27	12	28	19	42	19	36	19	24
2006-07	28	28	25	34	28	18	32	31	29	28
2007-08	32	20	16	12	19	28	25	28	16	22
2008-09	29	36	36	41	39	29	17	36	15	31
2009-10	19	26	38	32	45	38	18	26	26	30
2010-11	38	42	25	12	23	28	28	39	36	30
2011-12	24	18	34	19	36	31	20	28	29	27
2012-13	27	31	12	30	26	21	18	23	18	23
2013-14	20	41	37	13	18	19	26	29	33	26
2014-15	21	42	25	34	45	12	22	16	39	27
Average	25	31	26	26	30	27	23	29	26	**27**

Source: Computed from the annual reports of sample sugar units of Andhra Pradesh state from 2006-15

Table-4.1.34 presents the Accounts Receivables days of sugar firms of Andhra Pradesh and the relative position of the select sugar manufacturing units under study. Every firm want to collect their receivables as early as possible to safeguard their liquidity position. The Accounts Receivables days measures efficiency of firm in terms of how many days a business can turn its accounts receivable into cash during a period. A shorter accounts receivables in days would be more favorable. Less receivables in days means the companies are collecting their receivables more faster and effectively. High receivables in days indicate the company is not able to collect cash from its customers at a faster rate. The highest average accounts receivables in days(i.e., 31days) was found in Empee sugars. The analysis brings out the observation that, the accounts receivables of the three select sugar manufacturing companies (Empee sugars, Nava Bharat Sugars and Sagar Sugars) were not efficient in accounts receivables when compared to (Andhra, KCP sugars and Jeypore sugars, Parrys sugars, Prudential sugars and suddalagunta sugars). During the study period with refers to efficiency in managing accounts receivables days in Andhra Pradesh, among the select sugar manufacturing units Prudential sugars(23 days) stood at first followed by Andhra Sugars(25 days), Jeypore(26 days), KCP Sugars(26 days), Suddalagunta Sugars(26 days), Parrys sugars(27 days), Sagar sugars(29 days) Nava Bharat Sugars(30 days) and Empee Sugars(31 days).

TABLE-4.1.35

ACCOUNTS RECEIVABLES IN DAYS OF SELECT SUGAR UNITS IN TELANGANA

(In days)

Name Of The Companies										
Year	**Delta Sugars**	**Gayathri Sugars**	**GMR Sugars**	**Kakatiya Sugars**	**Madhucon Sugars**	**Ndsl Sugars**	**Nsl Sugars**	**Shivashakti Sugars**	**Trident Sugars**	**Average**
2005-06	19	28	14	15	28	36	33	11	31	24
2006-07	42	18	20	27	31	26	28	15	31	26
2007-08	38	52	18	21	28	19	18	25	39	29
2008-09	18	45	23	18	30	12	23	44	41	28
2009-10	33	36	42	28	27	35	13	35	36	32
2010-11	18	16	28	37	19	42	19	39	12	26
2011-12	44	42	19	16	21	40	35	33	25	31
2012-13	41	39	28	20	26	37	39	38	15	31
2013-14	32	14	24	19	18	31	31	30	29	25
2014-15	38	11	37	20	21	29	26	26	29	26
Average	32	32	24	22	25	31	27	30	29	**28**

Source: Computed from the annual reports of sample sugar units of Telangana State from 2006-2015

Table-4.1.35 presents the Accounts Receivables days of sugar production firms in Telangana State and the relative position of the select sugar manufacturing units under study. During the study period, out of the nine selected sugar manufacturing units the Accounts Receivables in days are continuously fluctuating and increasing every year mostly in all the units. The lowest average number of days in receivables (i.e., 22 days) was found in Kakatiya sugars which is good sign for efficient management of firm in collecting its receivables faster. The highest Average Receivables in Days can be found as (32 days) in Gayathri sugars and Delta sugars as well. The analysis brings out the observation that, the accounts receivables of the selected sugar manufacturing companies were at efficient in accounts receivables. Overall the study period with regard to accounts receivables in Telangana , out of the nine sugar manufacturing units Kakatiya sugars (22 days), GMR sugars(24 days), Madhucon sugars (25 days), NSL sugars (27 days), Trident sugars (29 days), Shivashakti sugars(30 days), NDSL sugars (31days), Gayatri sugars and Delta sugars stood at last with (32 days).

TABLE-4.1.36

AVERAGE ACCOUNTS RECEIVABLES IN DAYS OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015

(In days)

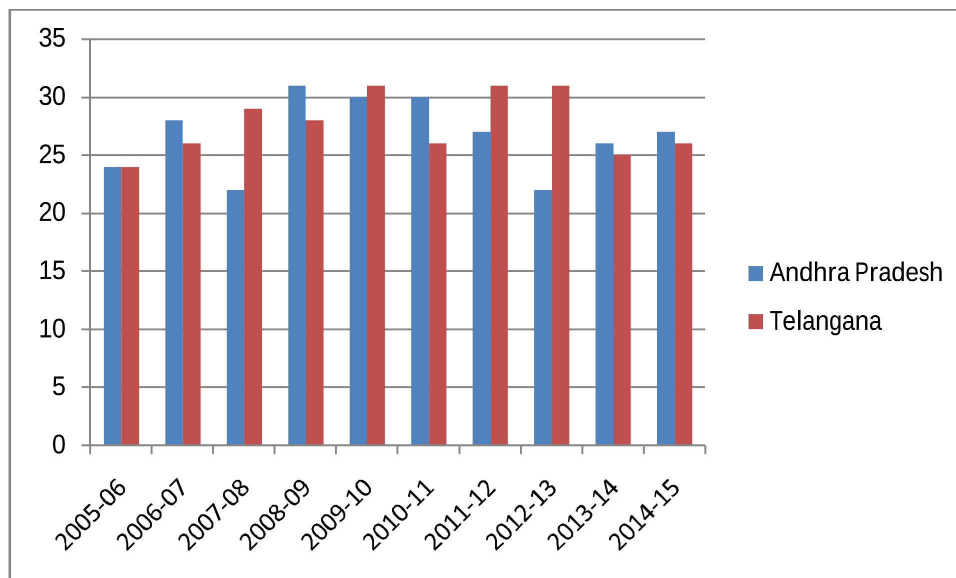
Years	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**
Andhra Pradesh	24	28	22	31	30	30	27	22	26	27
Telangana	24	26	29	28	31	26	31	31	25	26

Source: Accounts Receivables in days of select sugar units in Andhra Pradesh, Table 4.1.34

Accounts receivables in days of select sugar units in Telangana, Table 4.1.35

FIGURE 4.1.36

AVERAGE ACCOUNTS RECEIVABLES IN DAYS OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015



Source: Average Accounts Receivables in days of sample units in Andhra Pradesh and Telangana during study period, Table 4.1.36

The graph signifies accounts receivables in days of the Andhra Pradesh & Telangana state selected sugar manufacturing units from 2006-2015. It is observed that from the year 2005-2006, there are fluctuations in Andhra Pradesh sugar units & Telangana state units. Thus, both the state's select sugar units have maintained effective accounts receivables in days during the study period.

4.1.13 ACCOUNTS PAYABLES IN DAYS

Accounts payables days has been calculated as per the select sample sugar company's annual reports (shown in the appendix from B-I to B-XVIII) and analysed.

TABLE-4.1.37

ACCOUNTS PAYABLES IN DAYS OF SELECT SUGAR UNITS IN ANDHRA PRADESH

(In days)

	Name Of The Companies									
Year	**Andhra Sugars**	**Empee Sugars**	**Kcp Sugars**	**Jeypore Sugars**	**Nava Bharat Sugars**	**Parrys Sugars**	**Prudential Sugars**	**Sagar Sugars**	**Suddalagunta Sugars**	**Average**
2005-06	62	72	59	53	61	54	52	71	92	64
2006-07	81	63	72	64	59	80	68	81	88	73
2007-08	76	81	69	59	63	59	55	96	79	71
2008-09	82	70	52	70	55	66	119	69	68	72
2009-10	52	59	63	54	58	55	98	55	66	62
2010-11	62	50	51	41	61	67	82	88	58	62
2011-12	71	81	50	57	41	71	63	112	115	73
2012-13	61	62	48	70	54	68	80	97	90	70
2013-14	59	59	60	69	71	72	90	88	72	71
2014-15	41	62	52	54	69	59	93	63	69	62
Average	65	66	58	59	59	65	80	82	80	**68**

Source: Computed the annual reports of sample sugar units of Andhra Pradesh state from 2006-2015

Table-4.1.37 presents the Accounts payable days of sugar companies of Andhra Pradesh and the relative position of the select sugar manufacturing units under study. Deloof (2003) generally stated that, payment period is the time taken to settle accounts payments. maintain good reputation with supplier. Delaying payment to the accounts payable however, enable company to use the cash for generating returns. The Accounts payable measures efficiency of a firm in terms of how long it takes a company to pay its invoices from trade creditors. Gopinathan(2012), Chatterjee(2012) and Jose(1996) has considered Accounts payable days as component of working capital. The longer they take to pay their creditors, the more money the company has on hand, which is good for working capital and free cash flow. The analysis brings out the observation with refers to Accounts payables in days, that all the years within the company there are huge fluctuations from year to year. The select units of Andhra Pradesh are showing high difference within firms with regard to their Average Accounts payables in days. During the study period KCP Sugars(58 days) stood first followed by Jeypore sugars(59 days), Nava Bharat sugars(59 days), Parrys sugars(65 days), Andhra sugars(65 days) and Empee sugars(66 days), Prudential(80 days), Suddalagunta sugars(80 days) and Sagar sugars (82 days) with respect to Accounts payables in Days.

TABLE-4.1.38

ACCOUNTS PAYABLES IN DAYS OF SELECT SUGAR UNITS IN TELANGANA

(In days)

Year	Delta Sugars	Gayathri Sugars	GMR Sugars	Kakatiya Sugars	Madhucon Sugars	Ndsl Sugars	Nsl Sugars	Shivashakti Sugars	Trident Sugars	Average
2005-06	66	82	90	72	75	91	97	69	55	77
2006-07	71	62	80	68	49	88	96	77	114	78
2007-08	80	78	77	84	66	85	86	63	91	79
2008-09	96	97	67	92	59	63	72	86	90	80
2009-10	81	69	58	58	85	44	117	98	81	77
2010-11	118	53	46	114	99	74	89	55	78	81
2011-12	92	45	73	90	117	71	58	71	69	76
2012-13	77	81	64	86	91	68	113	88	52	80
2013-14	61	78	99	51	76	57	88	73	68	72
2014-15	53	51	89	48	60	48	46	53	74	58
Average	80	70	74	76	78	69	86	73	77	**76**

Source: Computed from the annual reports of sample sugar units of Telangana State from 2006-2015

Table-4.1.38 presents the Accounts payable days of sugar produced companies in the Telangana State and the relative position of the select sugar units under study. The accounts payable measures efficiency of a firm in terms of how long it takes a company to pay its invoices from trade creditors, The longer they take to pay their creditors, the more money the company has on hand, which is good for working capital and free cash flow. Over the period of analysis, out of the nine selected sugar manufacturing units the Accounts payable of Three companies (Madhucon sugars, Delta sugars and NSL sugars) are slightly better other six units in Telangana State. The highest average number of payables days (i.e., 86 days) was found in NSL sugars. In Telangana State, out of the nine sugar manufacturing units sugars NSL sugars (86 days)stood at first followed by Delta sugars(80 days) ,Madhucon sugars(78 days), Trident sugars(77 days), Kakatiya sugars(76 days), GMR sugars(74 days), Shivashakti sugars(73 days), Gayathri sugars(70 days) and NDSL sugars(69), with respect to Accounts payable during the study period of 10 years i.e., 2005-06 to 2014-15.

TABLE-4.1.39

AVERAGE ACCOUNTS PAYABLES IN DAYS RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015(in days)

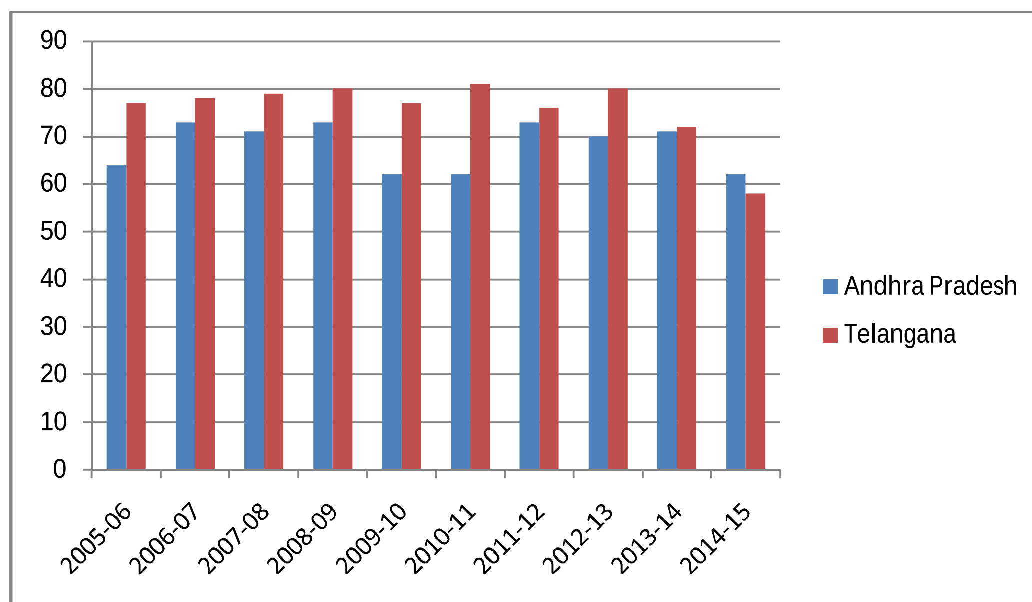
Years	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**
Andhra Pradesh	64	73	71	73	62	62	73	70	71	62
Telangana	77	78	79	80	77	81	76	80	72	58

Source: Accounts payables in days of select sugar units in Andhra Pradesh, Table 4.1.37

Accounts payables in days of select sugar units in Telangana, Table 4.1.38

FIGURE 4.1.39

AVERAGE ACCOUNTS PAYABLES IN DAYS RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015



Source: Average Accounts payables in days of sample units in Andhra Pradesh and Telangana 2006-2015, Table 4.1.39

The graph shows average accounts payables in days of the Andhra Pradesh & Telangana state selected sugar manufacturing units from 2006-2015. It is observed that Andhra Pradesh state's sugar manufacturing units(62 to 73 days) & Telangana state manufacturing units(58 to 81 days) are showing slight fluctuations. Thus, both the states have maintained effective accounts payable in days during the study period.

4.1.14 CASH CONVERSION CYCLE:

The cash conversion cycle (CCC) is a metric that expresses the length of time, in days, that it takes for a company to convert resource inputs into cash flows. Eljelly(2004), Gopinathan(2012), Chatterjee(2012), Falope(2005) and Jose(1996) has considered Cash Conversion Cycle as Working Capital components in their studies. The cash conversion cycle attempts to measure the amount of time each net input dollar is tied up in the production and sales process before it is converted into cash through sales to customers. It has been calculated as per the select sample sugar company's annual reports (shown in the appendix from B-I to B-XVIII) and analysed.

TABLE-4.1.40

CASH CONVERSION CYCLE DAYS OF SELECT SUGAR UNITS IN ANDHRA PRADESH

(In days)

Name Of The Companies										
Year	**Andhra Sugars**	**Empee Sugars**	**Jeypore Sugars**	**Kcp Sugars**	**Nava Bharat Sugars**	**Parrys Sugars**	**Prudential Sugars**	**Sagar Sugars**	**Suddalagunta Sugars**	**Average**
2005-06	107	155	141	120	64	132	104	13	52	99
2006-07	67	0	201	129	60	-28	88	-4	70	65
2007-08	142	-32	308	158	73	31	20	-29	75	83
2008-09	66	52	332	232	96	111	-5	131	15	114
2009-10	50	98	212	142	75	140	68	46	3	93
2010-11	157	198	335	344	61	70	74	44	116	155
2011-12	99	160	48	216	105	98	66	15	3	90
2012-13	93	80	238	150	67	617	66	43	30	154
2013-14	141	140	250	246	54	282	41	-3	89	138
2014-15	140	22	201	203	85	262	46	45	109	124
Average	106	87	226	195	74	172	57	30	56	**112**

Source: Computed the annual reports of sample sugar units of Andhra Pradesh state from 2006-2015

Table 4.1.40 shows the cash conversion cycle in days of sugar companies in Andhra Pradesh and the relative position of the select sugar manufacturing units under study. The cash conversion cycle measures the length of time, in days, that it takes for a company to convert resource inputs into cash. cash conversion cycle gives us the amount of time needed to sell inventory, the amount of time needed to collect receivables and the length of time to pay the credits. Shorter cash conversion cycle is favorable as the company can pay its bills and can generate cash at short period of time. Among the above select units with regard to cash conversion duration in days, Sagar sugars is showing least number of days (i.e., 30 days) because of lower in the number of days they can effectively convert their inputs into resources and can convert them into cash within a less period of time. The highest number of cash conversion days (i.e., 226) was found in Jeypore sugars. It means the firm does not have adequate liquidity of cash flows to meet with its short term and frequent expenses. The analysis brings out the observation that, regarding the performance of the select units in terms of CCC Sagar Sugars(30 days) stood in first, followed by Suddalagunta sugars(56 days), Prudential Sugars(57 days), Nava Bharat Sugars(74 days), Empee Sugars(87 days), Andhra Sugars(106 days), Parrys Sugars(172 days), KCP Sugars(195 days), Jeypore Sugars(226 days) during the study period.

TABLE-4.1.41

CALCULATION OF CCC IN DAYS OF SELECT SUGAR UNITS IN TELANGANA

(In days)

Name Of The Companies										
Year	**Delta Sugars**	**Gayathri Sugars**	**GMR Sugars**	**Kakatiya Sugars**	**Madhucon Sugars**	**Ndsl Sugars**	**Nsl Sugars**	**Shivashakti Sugars**	**Trident Sugars**	**Average**
2005-06	64	105	17	80	43	12	6	133	65	58
2006-07	68	116	39	92	37	-32	68	-23	36	44
2007-08	37	289	13	-8	49	30	27	97	80	68
2008-09	8	147	42	-40	40	24	58	8	18	33
2009-10	10	160	40	93	49	46	-32	-33	80	45
2010-11	8	286	57	46	-1	54	13	225	7	77
2011-12	80	102	49	90	-10	57	70	1	95	59
2012-13	18	114	50	79	-4	62	7	-19	31	37
2013-14	76	181	-12	159	14	43	38	25	66	65
2014-15	94	157	4	168	47	53	83	16	42	73
Average	47	167	29	76	26	35	35	44	52	**56**

Source: Computed from the annual reports of sample sugar units of Telangana State from 2006-2015

Table-4.1.41 presents the cash conversion cycle days of sugar companies producing units in Telangana state and the relative position of the selected sugar manufacturing units under study. Over the period of analysis all select firms are showing high fluctuations from year to year. Among the select sugar manufacturing units the cash conversion cycle of Gayathri sugars(167 days) is highest in Telangana State. Where as the lowest period of time taken by Madhucon sugars(26 days). The analysis brings out the observation that, the cash conversion cycle of the majority of select sugar units was efficient in converting their inputs into cash. During the study period as per efficiency of the cash conversion out of the nine sugar manufacturing sugar units Madhucon Sugars(26 days) stood in first, followed by GMR sugars(29 days), NSDL Sugars(35 days), NSL Sugars(35 days), Shivashakti Sugars(44 days), Delta Sugars(47 days), Trident Sugars(52 days), Kakatiya Sugars(76 days) and Gayathri Sugars(167 days).

TABLE-4.1.42

AVERAGE CASH CONVERSION CYCLE OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015

(In days)

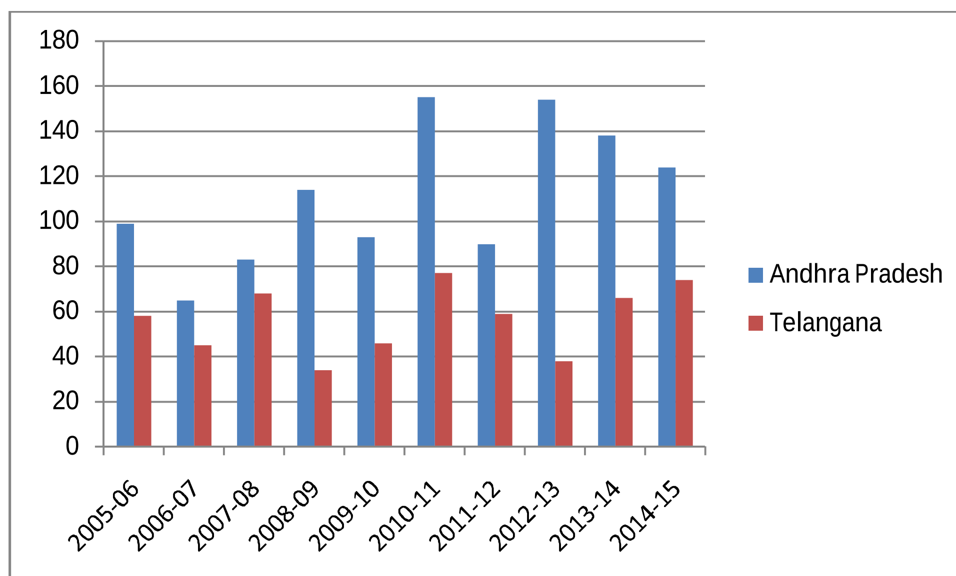
Years	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**
Andhra Pradesh	99	65	83	114	93	155	90	154	138	124
Telangana	58	45	68	34	46	77	59	38	66	74

Source: Cash conversion cycle of select sugar units in Andhra Pradesh, Table 4.1.40

Cash conversion cycle of select sugar units in Telangana, Table 4.1.41

FIGURE 4.1.42

AVERAGE CASH CONVERSION CYCLE OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015



Source: Average Cash conversion cycle in days of sample units in Andhra Pradesh and Telangana 2006-2015, Table 4.1.42

The graph indicating Average Cash Conversion Cycle in days of select sugar units from 2006-2015. It observes that from the year 2005-2006, there is a slight increase in Andhra Pradesh manufacturing units, whereas in Telangana state manufacturing units there is a continuous declining trend. The less conversion period shows efficiency of firm to convert resource inputs into cash. Thus, Telangana select units are efficient in terms of cash conversion period than select units of Andhra Pradesh state during the study period.

4.1.15 OPERATING PROFIT MARGIN

Operating profit ratio measures the efficiency of management in generation of Profits. Higher ratio is desirable to overcome any increase in costs and competition. In order to examine how strong and profitable the operating activities of the sample units it is determined. It has been calculated as per the select sample sugar company's annual reports (shown in the appendix from B-I to B-XVIII) and analysed.

TABLE-4.1.43

OPERATING PROFIT MARGIN OF SELECT SUGAR UNITS IN ANDHRA PRADESH

(In Percentage)

Name Of The Companies										
Year	**Andhra Sugars**	**Empee Sugars**	**Jeypore Sugars**	**KCP Sugars**	**Nava Bharat Sugars**	**Parrys Sugars**	**Prudential Sugars**	**Sagar Sugars**	**Suddalagunta Sugars**	**Average**
2005-06	0.2209	0.1354	0.2870	0.5498	0.182	0.16375	0.1506	0.1003	0.0539	0.2048
2006-07	0.2484	0.1446	0.1987	0.2233	0.3074	0.25800	0.1051	-0.0249	0.0670	0.1697
2007-08	0.2428	0.0987	0.1059	0.0847	0.4668	0.21593	-0.1724	0.0888	0.0255	0.1285
2008-09	0.1816	0.1475	0.2046	0.1332	0.5524	0.17800	0.0630	0.0878	0.0332	0.1757
2009-10	0.2214	0.1857	0.2554	0.2055	0.4185	-0.02382	0.0351	0.1159	0.0256	0.1599
2010-11	0.2583	0.1981	0.1182	0	0.3099	0.02453	0.0251	0.0137	0.0256	0.1081
2011-12	0.2038	0.1679	0.1309	0.1344	0.2272	0.11786	0.0339	-0.0451	0.0265	0.1108
2012-13	0.2423	0.1361	0.1531	0.2399	0.2663	0.06114	0.0224	-0.0896	0.1688	0.1333
2013-14	0.3719	0.0380	0.0344	0.1243	0.2302	-0.04060	0.0373	-0.055	0.2735	0.1126
2014-15	0.0258	-1.2042	-0.158	-0.066	0.1445	0.03508	0.0571	-0.0443	0.0363	-0.1304
Average	0.2217	0.0048	0.1330	0.1629	0.3105	0.0989	0.03572	0.014669	0.0735	**0.1173**

Source: Computed the annual reports of sample sugar units of Andhra Pradesh state from 2006-2015

Table-4.1.43 presents the Operating Profit margin of sugar producing units in Andhra Pradesh and the relative position of the selected sugar manufacturing units under study. The operating profit margin gives the business owner a lot of important information about the firm's profitability, particularly with regard to cost control. It shows how much cash is thrown off after most of the expenses are met. A high operating profit margin means that the company has good cost control and/or that sales are increasing faster than costs, which is the optimal situation for the company. A high operating profit margin usually means that the business firm has a low-cost operating model. The analysis brings out the observation that, the Operating profit margin of the selected sugar manufacturing Companies were at safest maintenance of their operating profits(except Empee sugar and Sagar sugars). Overall the study period with respect to operating profit margin two companies (Empee sugars and Sagar sugars) because of decreasing ratio it has been identified that they decrease their profits year after year throughout the study period particularly from 2012-16. The highest average ratio was found in Nava Bharat sugars (0.3105), Andhra sugars(0.2217), KCP sugars(0.1629), Jeypore sugars(0.1330), Parrys sugar(0.0989), Suddalagunta sugars(0.0735), Prudential sugars(0.03572), Sagar sugars(0.014669) and Empee sugars(0.0048).

TABLE-4.1.44

OPERATING PROFIT MARGIN OF SELECT SUGAR UNITS IN TELANGANA

(In Percentage)

	Name Of The Companies									
Year	**Delta Sugars**	**Gayathri Sugars**	**GMR Sugars**	**Kakatiya Sugars**	**Madhucon Sugars**	**Ndsl Sugars**	**Nsl Sugars**	**Shivashakti Sugars**	**Trident Sugars**	**Average**
2005-06	0.2169	0.2313	0.1757	0.2031	0.1855	0.9469	0.6000	0.0340	0.0789	0.2969
2006-07	0.0807	0.1393	0.2656	0.2289	0.1530	0.9676	0.6000	0.0261	0.7894	0.3611
2007-08	0.1371	0.0094	0.3097	0.2039	0.1494	0.0565	0.6000	0.0262	0.2857	0.1975
2008-09	0.0928	0.0597	0.2534	0.1999	0.1230	0.0437	0.6000	0.0208	0.0773	0.1634
2009-10	-0.0611	0.1691	0.2412	0.1579	0.1040	0.0157	0.6000	0.0424	0.0790	0.1498
2010-11	0.0093	0.2136	0.0449	0.0924	0.1005	-0.3878	0.6000	0.0226	0.1358	0.0923
2011-12	0.0039	0.0986	0.0248	0.1944	0.1051	-0.2374	0.6000	0.0356	0.1231	0.1053
2012-13	0.1383	0.1207	0.1180	0.1533	0.1583	-0.2518	0.6000	0.0403	0.1565	0.1370
2013-14	-0.2738	0.0571	0.2736	0.0701	0.2203	-0.1937	0.6000	0.1163	0.1579	0.1142
2014-15	0.2638	-0.0681	0.2837	0.0941	0.1762	-0.2736	0.6000	0.0645	-0.0658	0.1194
Average	0.0382	0.1031	0.1896	0.1598	0.1475	0.1066	0.6000	0.0429	0.18178	0.174387

Source: Computed from the annual reports of sample sugar units of Telangana State from 2006-2015

Table-4.1.44 presents the Operating Profit margin of sugar units in Telangana State under study. A high operating profit margin means that the company has good cost control and/or that sales are increasing faster than costs, which is the optimal situation for the company. During the period of an study, among the select sugar manufacturing units of Telangana the operating profit margin of seven companies (Delta sugars, Gayathri sugars, GMR sugars, Kakatiya sugars, Madhucon sugars, NDSL sugars and Shivashakti sugars) because of decreasing ratio values will decrease their profits year after year throughout the study period. The highest average ratio was found in NSL sugars(0.6000). The analysis brings out the observation that, the Operating profit margin of the selected sugar manufacturing Companies were at safest maintenance of their operating profits(except Delta sugars). With respect to Operating profit margin in Telangana, out of the nine sugar manufacturing units NSL sugars(0.6000) stood at first followed by trident sugars(0.3290),GMR sugars(0.1896), Kakatiya sugars(0.1598), Madhucon Sugars(0.1475), NDSL sugars(0.1066), Gayathri sugars(0.1031), Shivashakti sugars(0.0429) and Delta sugars(0.0382) with respect to higher operating profits during the study period.

TABLE-4.1.45

OPERATING PROFIT MARGIN RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015

(In Percentage)

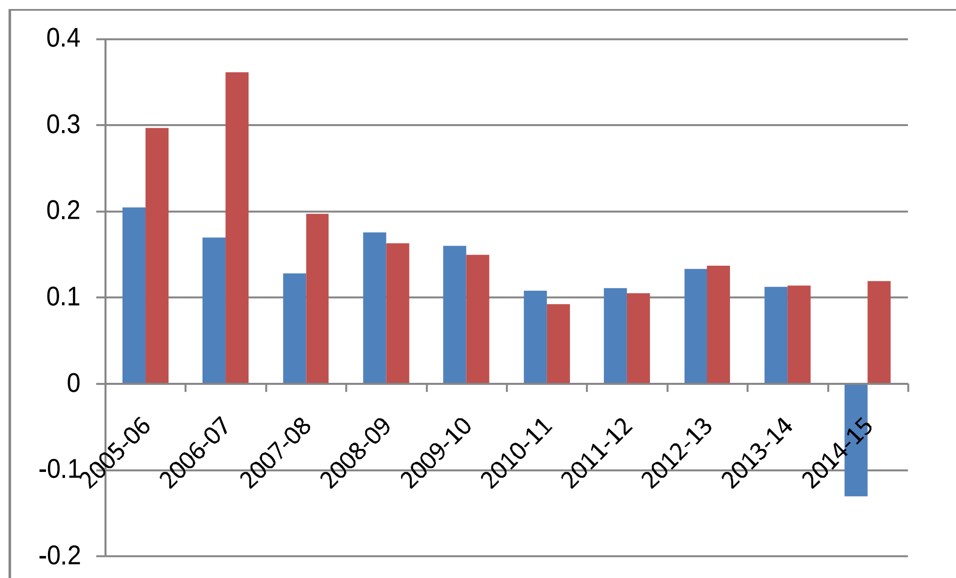
Years	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**
Andhra Pradesh	0.2048	0.1697	0.1285	0.1757	0.15992	0.1081	0.1108	0.1333	0.1126	-0.1304
Telangana	0.2969	0.3611	0.1975	0.1634	0.1498	0.0923	0.1053	0.1370	0.1142	0.1194

Source: Operating profit margin ratio of select sugar units in Andhra Pradesh, Table 4.1.43

Operating profit margin ratio of select sugar units in Telangana, Table 4.1.44

FIGURE 4.1.45

OPERATING PROFIT MARGIN RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015



Source: Average Operating profit margin ratio of sample units in Andhra Pradesh and Telangana 2006-2015, Table 4.1.45

The above graph depicts average operating profit margin of the Andhra Pradesh & Telangana state select sugar units from 2006-2015. It is observed that from the year 2005-2006, there is a constant decrease which further faced fluctuations in both the state's manufacturing units due to variations in cost of goods sold and operating expenses, there was a negative operating profit margin 2008-09(-1.0063) in Telangana manufacturing units. All the select units are showing inefficiency in maintaining control on their operating expenses.

4.1.16 RETURN ON TOTAL ASSETS RATIO

The return on total assets (ROTA) is a ratio that measures a company's earnings before interest and taxes (EBIT) against its total net assets. The ratio is considered to be an indicator of how effectively a company is using its assets to generate earnings before contractual obligations must be paid.

TABLE-4.1.46

RETURN ON TOTAL ASSETS RATIO OF SELECT SUGAR UNITS IN ANDHRA PRADESH

(In Percentage)

	Name Of The Companies									
Year	**Andhra Sugars**	**Empee Sugars**	**Jeypore Sugars**	**Kcp Sugars**	**Nava Bharat Sugars**	**Parrys Sugars**	**Prudential Sugars**	**Sagar Sugars**	**Suddalagunta Sugars**	**Average**
2005-06	0.1865	0.0054	0.8416	0.5502	0.2043	0.2234	0.1381	0.2729	0.0002	0.2691
2006-07	0.2258	0.2602	0.2728	0.2474	0.2228	0.1947	0.1157	-0.0679	0.0006	0.1635
2007-08	0.2475	0.0814	0.0824	0.1010	0.3538	0.0850	-0.1956	0.2458	0.0002	0.1112
2008-09	0.1342	0.0858	0.1236	0.1495	0.3946	0.0538	0.0489	0.2455	0.0014	0.1374
2009-10	0.2085	0.04081	0.1726	0.2169	0.2627	-0.0082	0.0344	0.15005	0.0013	0.1198
2010-11	0.2537	0.01713	0.0809	0	0.1910	0.01565	0.0268	0.1165	0.0013	0.0781
2011-12	0.1449	0.1178	0.1517	0.1622	0.1317	0.0823	0.0285	-0.0248	0.0019	0.0884
2012-13	0.2505	0.0851	0.0634	0.25857	0.1475	0.0324	0.0269	0.15379	0.0090	0.1141
2013-14	0.3802	0.0211	0.0213	0.14476	0.11907	-0.0376	0.0382	-0.2555	0.0036	0.0483
2014-15	0.2834	-0.3301	0.0602	-0.0393	0.0827	0.0613	0.0482	-0.4358	0.0027	-0.029
Average	0.2315	0.0384	0.1871	0.1791	0.2110	0.0702	0.0310	0.0400	0.0022	**0.1100**

Source: Computed the annual reports of sample sugar units of Andhra Pradesh state from 2006-2015

Table 4.1.46 presents the Return on total assets ratio of sugar produced in Andhra Pradesh and the relative position of the selected sugar manufacturing units under study. The Return on Total Assets ratio measures how effectively a company can turn earns a return on its investment. A higher ratio is more favorable to investors because it shows that the company is more effectively managing its assets to produce greater amounts of net income. A positive ROTA ratio usually indicates an upward profit trend as well. The highest average ratio was found in Andhra sugars(0.2315). The analysis brings out the observation that, the return on total assets ratio of the selected sugar manufacturing companies were at safest maintenance of their Assets (except Parrys sugars and Empee sugars, Prudential sugars, sagar sugars and suddalagunta sugars). With respect to Return on total assets ratio in Andhra Pradesh, out of select sugar manufacturing units Andhra Sugars(0.2315) stood at first followed by, Navabharat sugars(0.2110), Jeypore sugars(0.1871), KCP sugars(0.1791), Parrys sugar(0.0702), Sagar sugars (0.04005), Empee Sugars(0.0384),Prudential sugars(0.03101), and Suddalagunta sugars (0.0022) with respect to maximization of Return on Total Assets during the study period.

TABLE-4.1.47

RETURN ON TOTAL ASSETS RATIO OF SELECT SUGAR UNITS IN TELANGANA

(In Percentage)

Name Of The Companies										
Year	**Delta Sugars**	**Gayathri Sugars**	**GMR Sugars**	**Kakatiya Sugars**	**Madhucon Sugars**	**Ndsl Sugars**	**Nsl Sugars**	**Shivashakti Sugars**	**Trident Sugars**	**Average**
2005-06	0.1789	0.2045	0.1234	0.1937	0.1338	0.3270	-0.0010	0.7777	0.0351	0.2192
2006-07	0.0492	0.1041	0.2214	0.2264	0.1280	0.4622	-0.0016	0.4666	0.0365	0.1880
2007-08	0.0763	0.0550	0.2075	0.2202	0.1722	-0.0300	0.2806	0.4	0.1047	0.1651
2008-09	0.0842	0.0351	0.0857	0.2535	0.1615	0.0224	0.7761	0.1984	0.2496	0.2073
2009-10	-0.0448	0.0878	0.0545	0.1637	0.1419	0.0068	0.0307	0.2899	0.0992	0.0921
2010-11	0.0039	0.1267	0.0152	0.0863	0.1470	-0.0985	0.0748	0.0422	0.1233	0.0578
2011-12	0.0025	0.1397	0.0123	0.2416	0.1641	-0.1122	0.0019	0.1027	0.1315	0.0760
2012-13	0.1158	0.1503	0.1076	0.1882	0.1499	-0.1373	0.0019	0.1351	0.1390	0.0945
2013-14	0.0283	0.0759	0.1037	0.0954	0.1673	-0.0382	0.0387	0.36707	0.1262	0.1071
2014-15	0.0375	-0.3208	0.0265	0.0956	0.1679	-0.3091	0.0471	0.20668	-0.0455	-0.0104
Average	0.0549	0.0658	0.1034	0.17651	0.1534	0.0446	0.1335	0.2986	0.0999	**0.1196**

Source: Computed from the annual reports of sample sugar units of Telangana State from 2006-2015

Table 4.1.47 presents the Return on total assets ratio of sugar production units in Telangana State and the relative position of the selected sugar manufacturing units under study. The Return on Assets ratio measures how effectively a company can turn earns a return on its investment in assets. A higher ratio is more favorable to investors because it shows that the company is more effectively managing its assets to produce greater amounts of net income. A positive ROA ratio usually indicates an upward profit trend as well. Over the period of analysis, among select sugar manufacturing units the Return on total assets ratio of (GMR sugars, Kakatiya sugars, Madhucon sugars, NSL sugars and Shivashakti sugar) during the study period were increased. Concerned about the ratio, four companies (Delta sugars, Gayathri sugars, Trident sugars and NDSL sugars) because of decreasing ratio values will not effectively managing its assets to produce greater amounts of net income. The highest average ratio (i.e., 0.2986) was found in Shivashakti sugars. The analysis brings out the observation that, the return on total assets ratio of the select sugar units were not at safest maintenance of their Assets of all the select units in Telangana State. Overall the study period with respect to Return on total assets ratio in Telangana State, out of the nine sugar manufacturing units Shivashakti sugars(0.2986) stood at first followed by Kakatiya sugars(0.17651), Madhucon sugars(0.1534), NSL sugars(0.1335), GMR sugars(0.1034), Trident sugars(0.0999), Gayatri sugars(0.0658), Delta sugars(0.0549), and NDSL sugars(0.0446) with respect to maximization of Return on assets during the study period.

TABLE-4.1.48

AVERAGE RETURN ON TOTAL ASSETS RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015

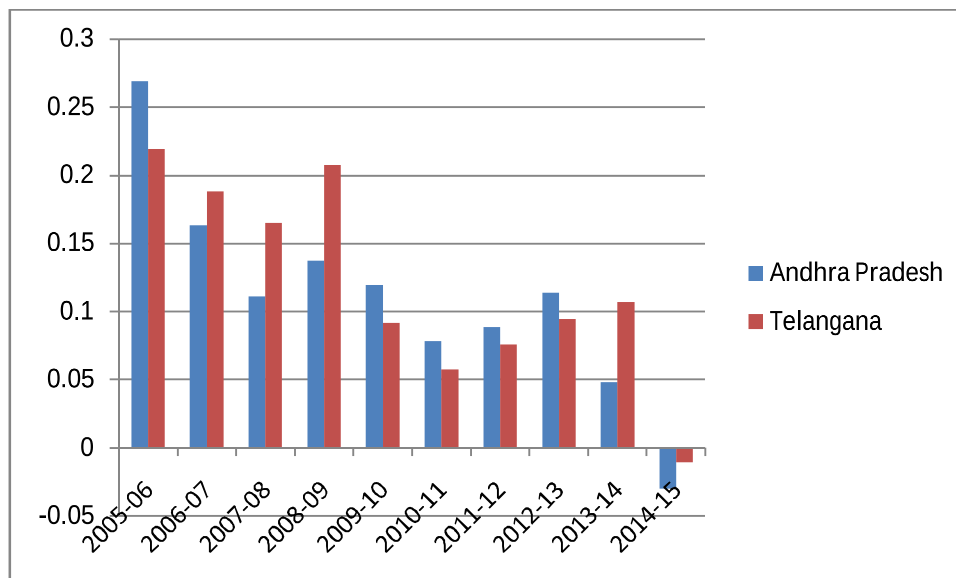
Years	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**
Andhra Pradesh	0.2691	0.1635	0.1112	0.1374	0.1198	0.0781	0.0884	0.1141	0.0483	-0.0296
Telangana	0.2192	0.1880	0.1651	0.2073	0.0921	0.0578	0.0760	0.0945	0.1071	-0.0104

Source: Return on total assets ratio of select sugar units in Andhra Pradesh, Table 4.1.46

Return on total assets ratio of select sugar units in Telangana, Table 4.1.47

FIGURE 4.1.48

AVERAGE RETURN ON TOTAL ASSETS RATIO OF SAMPLE UNITS IN ANDHRA PRADESH AND TELANGANA 2006-2015



Source: Average Return on total assets ratio of sample units in Andhra Pradesh and Telangana 2006-2015, Table 4.1.48

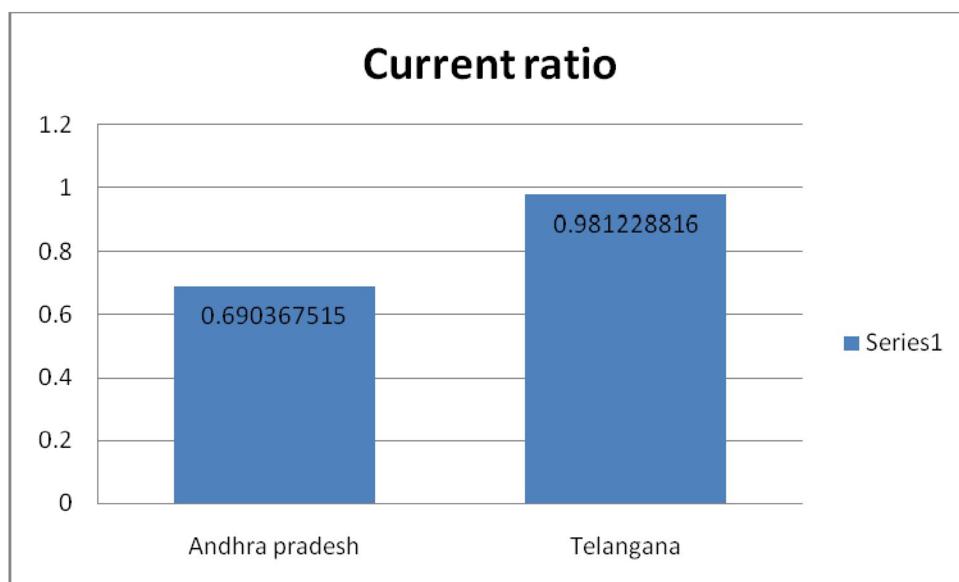
The graph depicts average return on total assets ratio of the Andhra Pradesh & Telangana state's selected sugar manufacturing units from 2006-2015. It is observed that from the year 2005-2006, there is a constant decrease till 2009-2010, in both the states of manufacturing units, there was a decline in Return on total assets. In 2014-15 shows The average return on total assets in the state of Andhra Pradesh worked out to be -0.0296 percent and -0.0104 percent in Telangana state. Hence all units showed inefficiency of management in utilizing its assets to generate profits.

SECTION-2

4.2 TESTING OF HYPOTHESES

FIGURE 4.2.1

Current ratio Standard Deviation of Andhra Pradesh and Telangana states



Source: Researcher's Computation

The figure depicts that deviation among the states of Andhra Pradesh and Telangana and it is seemed to Current ratio deviation is higher in Telangana state with 0.981 as compare to Andhra Pradesh state with 0.690.Hence concluded that sugar industries ability to pay short term and long term obligation is high in Telangana than the Andhra Pradesh state.

Hypothesis :

Null Hypothesis -$H_0$1: There is no significant difference in the level of Current ratio among the selected sugar industries between the states of Andhra Pradesh and Telangana.

TABLE 4.2.1

ANOVA - CURRENT ASSET RATIO

ANOVA							
Source of variation	Sum of Squares	Df	Mean Square	F - Value	P-value	F – critical	Sig.
Between groups	372.832	8	46.604	4.49	0.000	2.70	Yes
Within groups	24.714	10	2.471	1.05	0.72	2.32	No
Total	397.546	18	49.075				

Source: Researcher's Computation

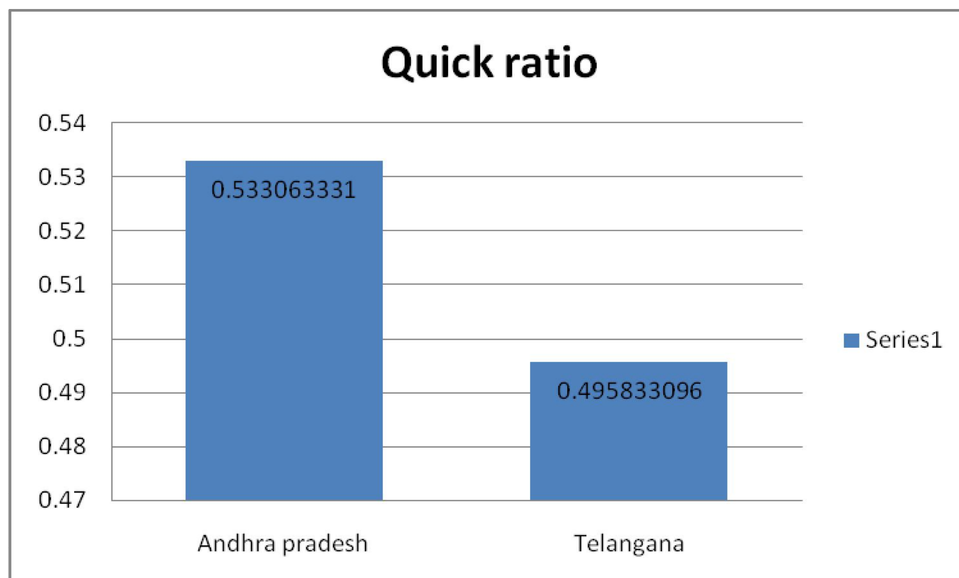
Sum of squares quantifies the variability between the groups of interest. Mean square is the average sum of squares for the factor .P- value shows that the differences between the means are statistically significant or insignificant.

Table depicts that at 5% level of significance, the calculated value of F (4.49) is greater than the table value (2.70) and seemed to be a significant difference in Current asset ratio among the selected sugar industries in the states of Andhra Pradesh and Telangana states. Hence the hypothesis is rejected. The P-value is 0.00, so the effects would be statistically significant.

Further observes there is no significant difference in Current ratio between the years of the selected sugar industries as the calculated value of F (1.05) is less than the table value (2.32). Hence, the null hypothesis is accepted. The P-value has been recorded more than 0.05, so the effects would be statistically non-significant.

FIGURE 4.2.2

QUICK RATIO'S STANDARD DEVIATION OF ANDHRA PRADESH AND TELANGANA STATES



Source: Researcher's Computation

The figure depicts that deviation among the units of Andhra Pradesh and Telangana and it is seemed to Quick ratio deviation is higher in Andhra Pradesh state with 0.533 where as Telangana state with 0.495. Hence concluded that Andhra Pradesh sugar industries are doing well that can meet its short term financial liabilities than the Telangana state.

Hypothesis:

Null Hypothesis -$H_0$2: There is no significant difference in level of Quick asset ratio among the selected sugar industries between the states of Andhra Pradesh and Telangana.

TABLE 4.2.2

ANOVA – QUICK ASSET RATIO

ANOVA							
	Sum of Squares	Df	Mean Square	F – Value	P-value	F – critical	Sig.
Between groups	284.735	8	35.591	8.685	0.000	2.70	Yes
Within groups	41.583	10	4.158	2.64	0.59	2.32	No
Total	326.318	18	39.749				

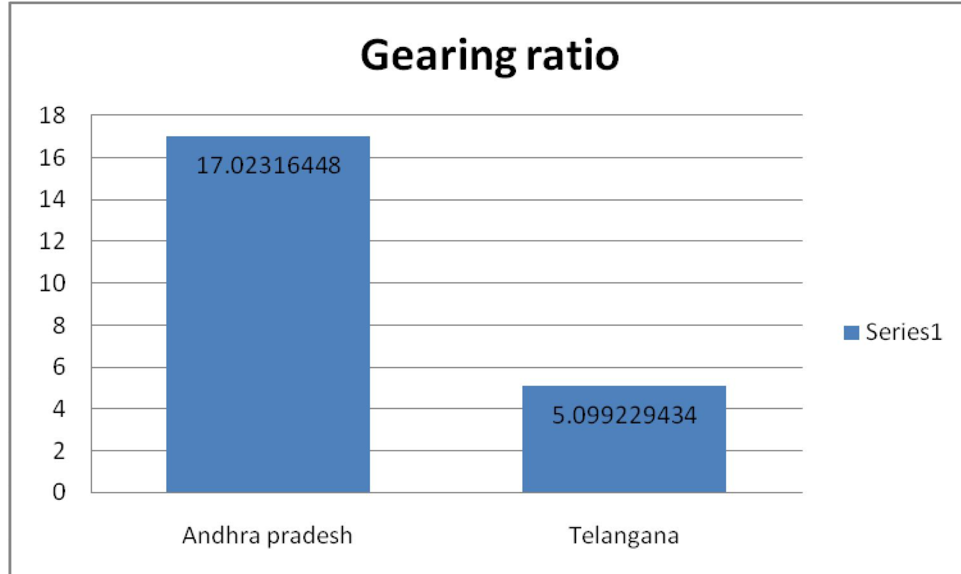
Source: Researcher's Computation

Table depicts that at 5% level of significance, the calculated value of F (8.685) is greater than the table value (2.70) and seemed to be a significant difference in quick ratio among the selected sugar industries in the states of Andhra Pradesh and Telangana states. Hence the hypothesis is rejected. The P-value is 0.00, so the effects would be statistically significant.

Further observes there is no significant difference in quick ratio between the years of the selected sugar industries as the calculated value of F (2.64) is greater than the table value (2.32). Hence, the null hypothesis is rejected. The P-value has been recorded more than 0.05, so the effects would be statistically non-significant.

FIGURE 4.2.3

GEARING RATIO'S STANDARD DEVIATION OF ANDHRA PRADESH AND TELANGANA STATES



Source: Researcher's Computation

The figure depicts that deviation among the units of Andhra Pradesh and Telangana and it is seemed to Current assets to total assets ratio deviation is higher in Andhra Pradesh state units with 17.02 as compare to Andhra Pradesh state with 5.099.Hence concluded that company's financial leverages is good in Andhra Pradesh than the Telangana state.

Hypothesis:

Null Hypothesis -$H_0$3: There is no significant difference in the level of gearing ratio among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

TABLE 4.2.3

ANOVA – GEARING RATIO

ANOVA							
	Sum of Squares	Df	Mean Square	F – Value	P-value	F - critical	Sig.
Between groups	517.276	8	64.65	7.611	0.000	2.70	Yes
Within groups	36.85	10	3.685	1.624	0.68	2.32	No
Total	554.126	18	68.335				

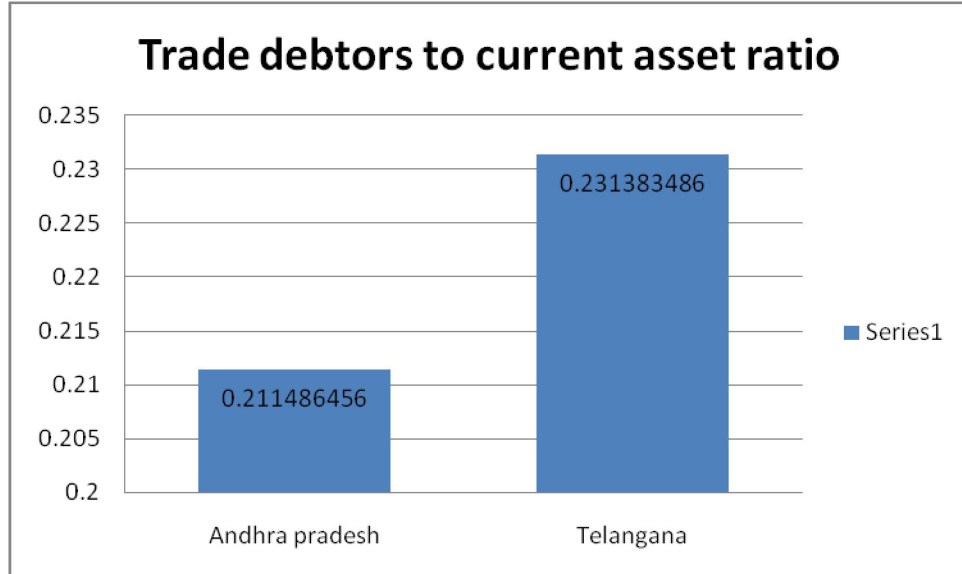
Source: Researcher’s Computation

Table depicts that at 5% level of significance, the calculated value of F (7.611) is greater than the table value (2.70) and seemed to be a significant difference in gearing ratio among the selected sugar industries in the states of Andhra Pradesh and Telangana states. Hence the hypothesis is rejected. The P-value is 0.00, so the effects would be statistically significant.

Further observes there is no significant difference in gearing ratio between the years of the selected sugar industries as the calculated value of F (1.624) is less than the table value (2.32). Hence, the null hypothesis is accepted but The P-value has been recorded more than 0.05, so the effects would be statistically non-significant.

FIGURE 4.2.4

TRADE DEBTORS TO CURRENT ASSETS RATIO STANDARD DEVIATION OF ANDHRA PRADESH AND TELANGANA STATES



Source: Compiled through SPSS Version – 20.

The figure depicts that deviation among the units of Andhra Pradesh and Telangana and it is seemed to Current assets to total assets ratio deviation is higher in Telangana with 0.211 as compare to Andhra Pradesh state with 0.231.

Hypothesis:

Null Hypothesis -$H_0$4: There is no significant difference in the level of Trade debtors to current asset ratio among the selected sugar industries and between states of Andhra Pradesh and Telangana.

TABLE 4.2.4

ANOVA - TRADE DEBTORS TO CURRENT ASSET RATIO

ANOVA							
	Sum of Squares	Df	Mean Square	F - Value	P- value	F - critical	Sig.
Between groups	685.272	8	85.659	5.185	0.000	2.70	Yes
Within groups	28.588	10	2.858	0.184	0.652	2.32	No
Total	713.86	18	88.517				

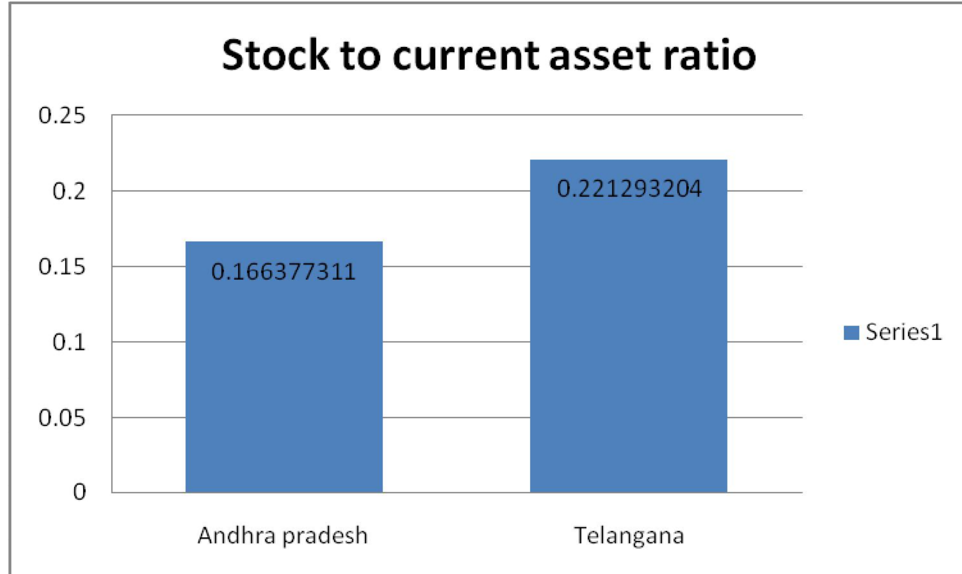
Source: Researcher's Computation

Table depicts that at 5% level of significance, the calculated value of F (5.185) is greater than the table value (2.70) and seemed to be a significant difference in trade debtors to current asset ratio among the selected sugar industries in the states of Andhra Pradesh and Telangana states. Hence the hypothesis is rejected. The P-value is 0.00, so the effects would be statistically significant.

Further observes there is no significant difference in trade debtors to current asset between the years(2005-2006 to 2014-2015) of the selected sugar industries as the calculated value of F (0.652) is less than the table value (2.32). Hence, the null hypothesis is accepted .The P-value has been recorded more than 0.05, so the effects would be statistically non-significant.

FIGURE 4.2.5

STOCK TO CURRENT ASSETS RATIO STANDARD DEVIATION OF ANDHRA PRADESH AND TELANGANA STATES



Source: Compiled through SPSS Version – 20.

The figure depicts that deviation among the units of Andhra Pradesh and Telangana and it is seemed to Current assets to total assets ratio deviation is higher in Telangana with 0.221 as compare to Andhra Pradesh state with 0.3885.

Hypothesis

Null Hypothesis -$H_0$5: There is no significant difference in the level of Stock to current assets ratio among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

TABLE 4.2.5

ANOVA - STOCK TO CURRENT ASSETS RATIO

ANOVA							
	Sum of Squares	Df	Mean Square	F – Value	P-value	F - critical	Sig.
Between groups	269.278	8	33.659	8.68	0.000	2.70	Yes
Within groups	34.985	10	3.498	0.17	0.84	2.32	No
Total	304.263	18	37.157				

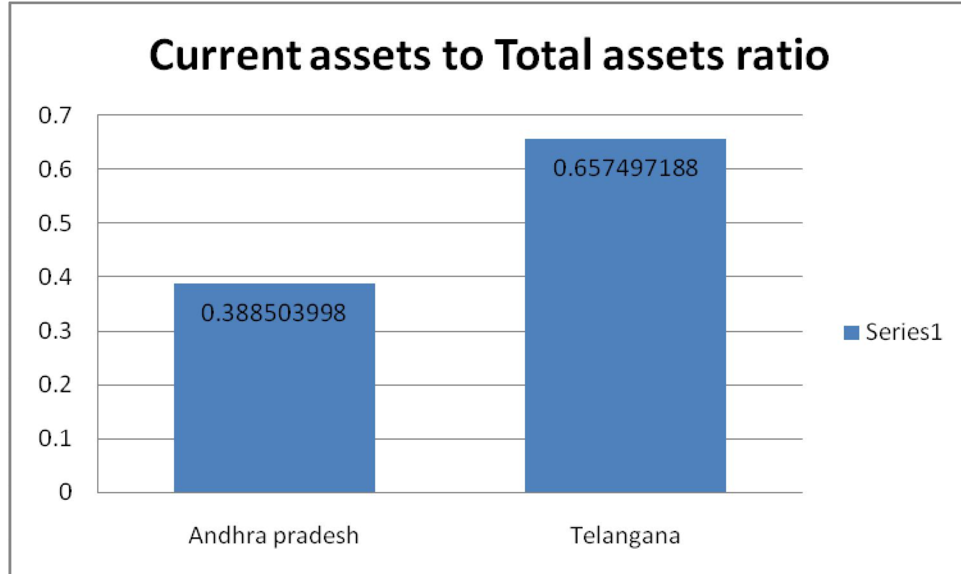
Source: Researcher's Computation

Table depicts that at 5% level of significance, the calculated value of F (8.68) is greater than the table value (2.70) and seemed to be a significant difference in stock to current assets ratio among the selected sugar industries in the states of Andhra Pradesh and Telangana states. Hence the hypothesis is rejected. The P-value is 0.00, so the effects would be statistically significant.

Further observes there is no significant difference in stock to current assets between the years(2005-2006 to 2014-2015) of the selected sugar industries as the calculated value of F (0.17) is less than the table value (2.32). Hence, the null hypothesis is accepted .The P-value has been recorded more than 0.05, so the effects would be statistically non-significant.

FIGURE 4.2.6

CURRENT ASSETS TO TOTAL ASSETS RATIO'S STANDARD DEVIATION OF ANDHRA PRADESH AND TELANGANA STATES



Source: Compiled through SPSS Version – 20.

The figure depicts that deviation among the units of Andhra Pradesh and Telangana and it is seemed to Current assets to total assets ratio deviation is higher in Telangana with 0.657 as compare to Andhra Pradesh state with 0.3885.

Hypothesis

Null Hypothesis -$H_0$6: There is no significant difference in the level of current assets to total ratio among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

TABLE 4.2.6

ANOVA- CURRENT ASSETS TO TOTAL ASSETS RATIO

ANOVA							
	Sum of Squares	Df	Mean Square	F – Value	P-value	F - critical	Sig.
Between Groups	418.558	8	52.319	8.16	0.000	2.70	Yes
Within Groups	28.572	10	2.857	0.45	0.82	2.32	No
Total	447.13	18	55.176				

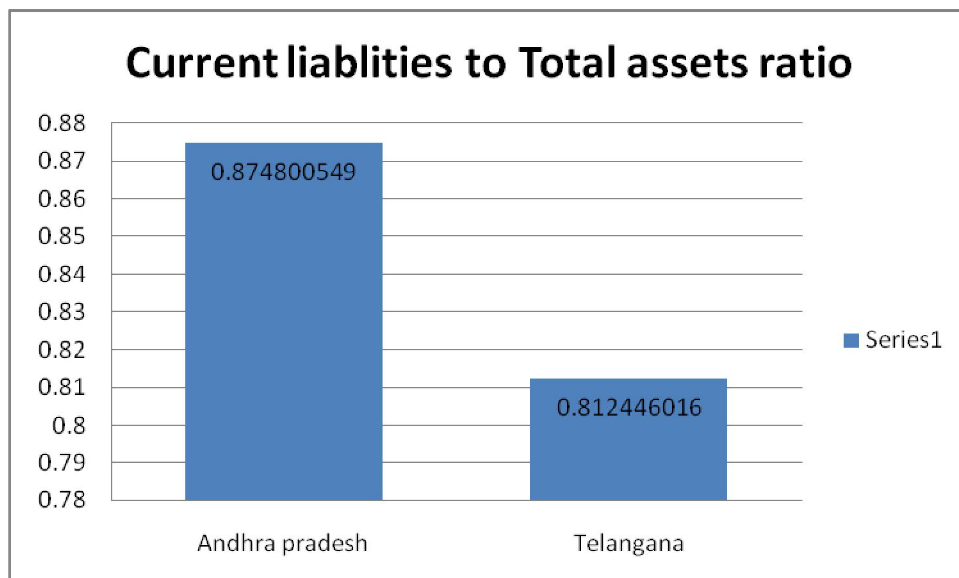
Source: Researcher's Computation

Table depicts that at 5% level of significance, the calculated value of F (8.16) is greater than the table value (2.70) and seemed to be a significant difference in current assets to total assets ratio among the selected sugar industries in the states of Andhra Pradesh and Telangana states. Hence the hypothesis is rejected. The P-value is 0.00, so the effects would be statistically significant.

Further observes there is no significant difference in current assets to total assets between the years(2005-2006 to 2014-2015) of the selected sugar industries as the calculated value of F (8.16) is less than the table value (2.32). Hence, the null hypothesis is accepted .The P-value has been recorded more than 0.05, so the effects would be statistically non-significant.

FIGURE 4.2.7

CURRENT LIABILITIES TO TOTAL ASSETS RATIOS STANDARD DEVIATION OF ANDHRA PRADESH AND TELANGANA STATES



Source: Compiled through SPSS Version – 20.

The figure depicts that deviation among the units of Andhra Pradesh and Telangana and it is seemed to Current liabilities to total assets ratio deviation is higher in Andhra Pradesh with 0.874 as compare to Telangana state.

Hypothesis

Null Hypothesis -$H_0$7: There is no significant difference in the level of current liabilities to total asset ratio among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

TABLE 4.2.7

ANOVA -CURRENT LIABILITIES TO TOTAL ASSETS RATIO

ANOVA							
	Sum of Squares	Df	Mean Square	F – Value	P-value	F - critical	Sig.
Between Groups	385.675	8	48.209	3.83	0.000	2.70	Yes
Within Groups	48.151	10	4.8151	0.18	0.59	2.32	No
Total	433.826	18	53.024				

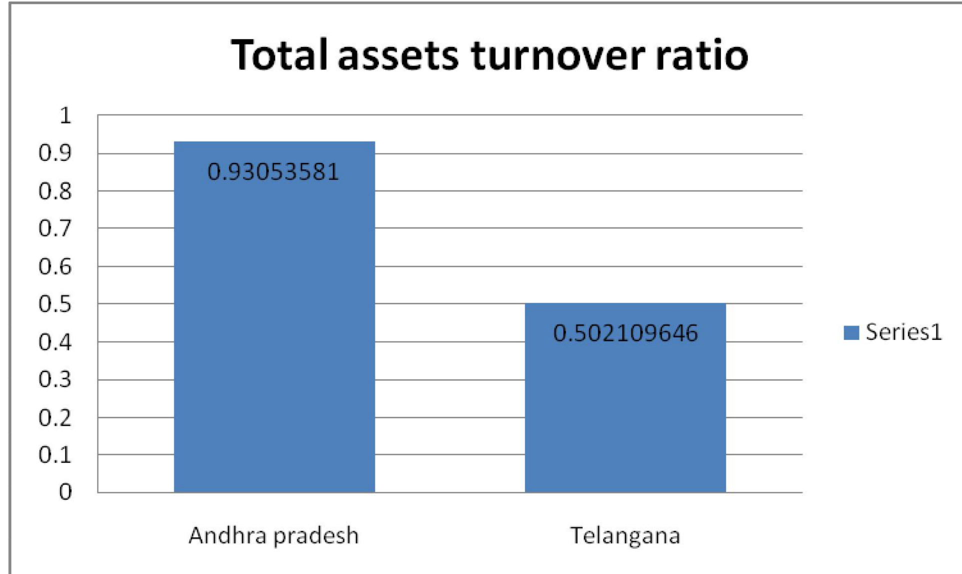
Source: Researcher’s Computation

Table depicts that at 5% level of significance, the calculated value of F (3.18) is greater than the table value (2.70) and seemed to be a significant difference in current liabilities to total assets ratio among the selected sugar industries in the states of Andhra Pradesh and Telangana states. Hence the hypothesis is rejected. The P-value is 0.00, so the effects would be statistically significant.

Further observes there is no significant difference in current liabilities to total assets between the years(2005-2006 to 2014-2015) of the selected sugar industries as the calculated value of F (0.18) is less than the table value (2.32). Hence, the null hypothesis is accepted .The P-value has been recorded more than 0.05, so the effects would be statistically non-significant.

FIGURE 4.2.8

TOTAL ASSETS TURNOVER RATIO'S STANDARD DEVIATION OF ANDHRA PRADESH AND TELANGANA STATES



Source: Compiled through SPSS Version – 20.

The figure depicts that deviation among the units of Andhra Pradesh and Telangana and it is seemed to Total assets turnover ratio deviation is higher in Andhra Pradesh with 0.930 as compare to Telangana state. Hence concluded that Andhra Pradesh state have the value of a company's sales generated relative to the value of its assets is more than the Telangana state.

Hypothesis

Null Hypothesis -$H_0$8: There is no significant difference in the level of current assets turnover ratio among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

TABLE 4.2.8

CURRENT ASSETS TURNOVER RATIO

ANOVA							
	Sum of Squares	df	Mean Square	F – Value	P-value	F - critical	Sig.
Between Groups	281.296	8	35.162	6.16	0.000	2.70	Yes
Within Groups	34.683	10	3.468	0.84	0.62	2.32	No
Total	315.979	18	38.63				

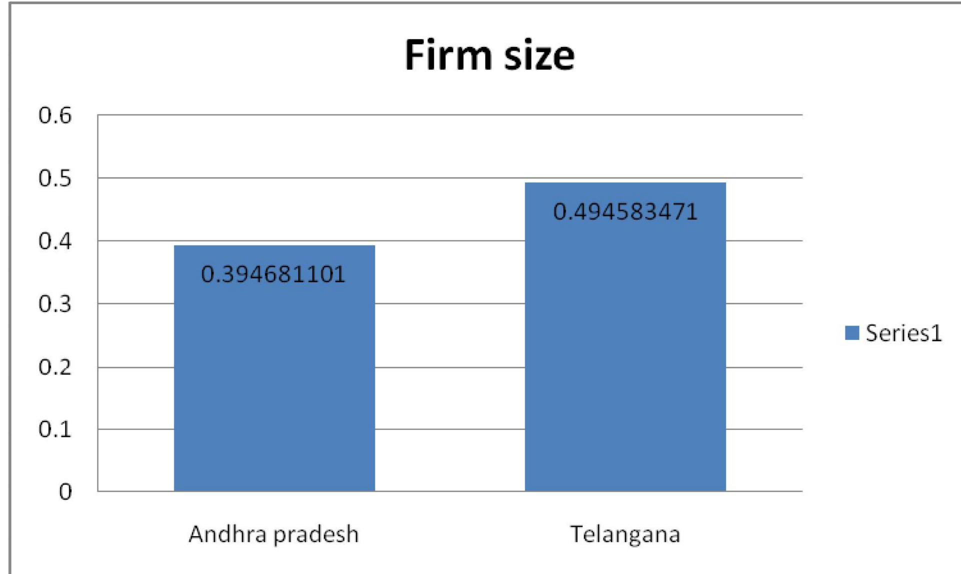
Source: Researcher's Computation

Table depicts that at 5% level of significance, the calculated value of F (6.16) is greater than the table value (2.70) and seemed to be a significant difference in current assets turnover ratio among the selected sugar industries in the states of Andhra Pradesh and Telangana states. Hence the hypothesis is rejected. The P-value is 0.00, so the effects would be statistically significant.

Further observes there is no significant difference in current assets turnover between the years(2005-2006 to 2014-2015) of the selected sugar industries as the calculated value of F (0.84) is less than the table value (2.32). Hence, the null hypothesis is accepted .The P-value has been recorded more than 0.05, so the effects would be statistically non-significant.

FIGURE 4.2.9

FIRM SIZE'S STANDARD DEVIATION OF ANDHRA PRADESH AND TELANGANA STATES



Source: Compiled through SPSS Version – 20.

The figure depicts that deviation among the states of Andhra Pradesh and Telangana and it is seemed to Firm size deviation is higher in Telangana with 0.494 as compare to Andhra Pradesh state. Hence it is concluded that Telangana unit's firm size is bigger than the Andhra Pradesh state.

Hypothesis

Null Hypothesis -$H_0$9: There is no significant difference in the level of firm size among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

TABLE 4.2.9

ANOVA - FIRM SIZE

ANOVA							
	Sum of Squares	Df	Mean Square	F – Value	P-value	F - critical	Sig.
Between Groups	826.268	8	103.2835	3.728	0.000	2.70	Yes
Within Groups	65.27	10	6.527	2.86	0.28	2.32	No
Total		18	109.8105				

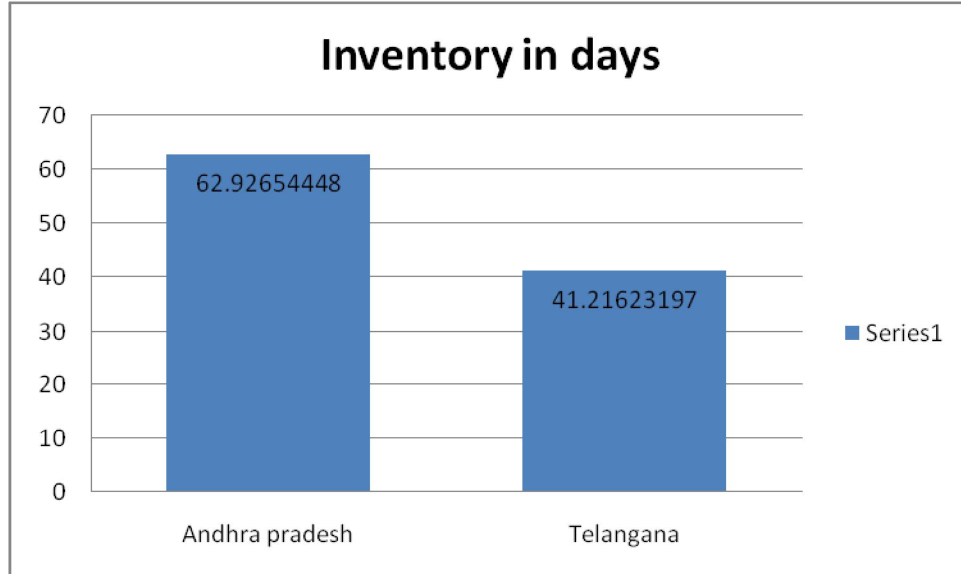
Source: Researcher's Computation

Table depicts that at 5% level of significance, the calculated value of F (3.728) is greater than the table value (2.70) and seemed to be a significant difference in firm size among the selected sugar industries in the states of Andhra Pradesh and Telangana states. Hence the hypothesis is rejected. The P-value is 0.00, so the effects would be statistically significant.

Further observes there is significant difference in firm size between the years (2005-2006 to 2014-2015) of the selected sugar industries as the calculated value of F (2.86) is greater than the table value (2.32). Hence, the null hypothesis is rejected .The P-value has been recorded more than 0.05, so the effects would be statistically non-significant.

FIGURE 4.2.10

INVENTORY IN DAY'S STANDARD DEVIATION OF ANDHRA PRADESH AND TELANGANA STATES



Source: Compiled through SPSS Version – 20.

The figure depicts that deviation among the units of Andhra Pradesh and Telangana and it is seemed to Inventory in days is higher in Andhra Pradesh with 62.92 as compare to Telangana state. Hence concluded that Andhra Pradesh state is "holding its inventory before selling it" is more than the Telangana state.

Hypothesis

Null Hypothesis -$H_0$10: There is no significant difference in the level of Inventory in days among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

TABLE 4.2.10

ANOVA - INVENTORY IN DAYS

ANOVA							
	Sum of Squares	Df	Mean Square	F – Value	P-value	F - critical	Sig.
Between Groups	1375.278	8	171.9097	7.738	0.000	2.70	Yes
Within Groups	64.288	10	6.428	1.91	0.26	2.32	No
Total	1440.016	18	178.3377				

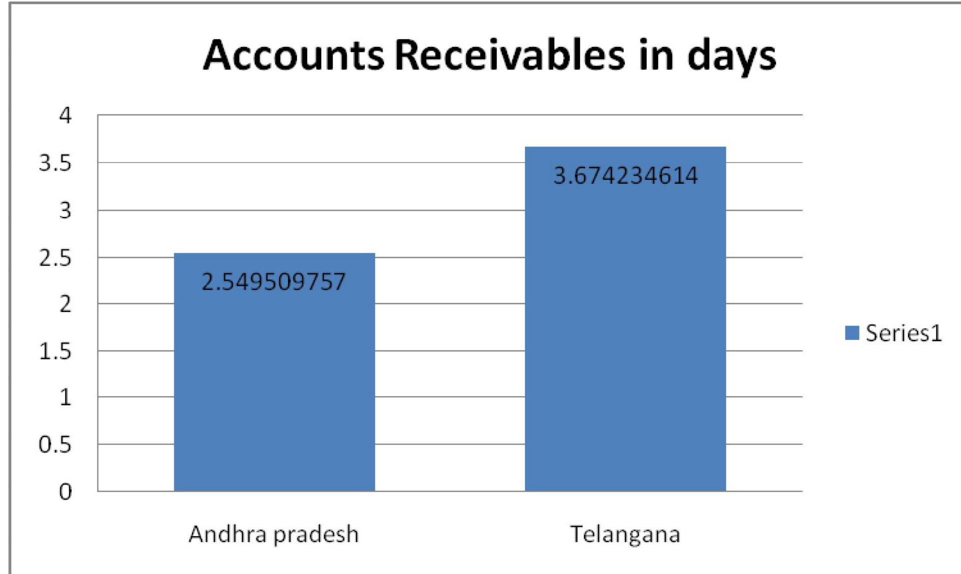
Source: Researcher’s Computation

Table depicts that at 5% level of significance, the calculated value of F (7.738) is greater than the table value (2.70) and seemed to be a significant difference in Inventory in days among the selected sugar industries in the states of Andhra Pradesh and Telangana. Hence the hypothesis is rejected. The P-value is 0.00, so the effects would be statistically significant.

Further observes there is no significant difference in inventory in days between the years (2005-2006 to 2014-2015) of the selected sugar industries as the calculated value of F (0.26) is less than the table value (2.32). Hence, the null hypothesis is accepted .The P-value has been recorded more than 0.05, so the effects would be statistically non-significant.

FIGURE 4.2.11

ACCOUNTS RECEIVABLE IN DAY'S STANDARD DEVIATION OF ANDHRA PRADESH AND TELANGANA STATES



Source: Compiled through SPSS Version – 20.

The figure depicts that deviation among the units of Andhra Pradesh and Telangana and it is seemed to Accounts receivable days is higher in Andhra Pradesh with 3.674 as compare to Telangana state.

Hypothesis

Null Hypothesis -$H_0$11: There is no significant difference in the level Accounts receivables in days among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

TABLE 4.2.11

ANOVA - ACCOUNTS RECEIVABLES IN DAYS

ANOVA							
	Sum of Squares	df	Mean Square	F – Value	P-value	F - critical	Sig.
Between Groups	1566.287	8	195.78	8.376	0.000	2.70	Yes
Within Groups	88.156	10	8.8156	0.59	0.036	2.32	yes
Total	1654.443	18					

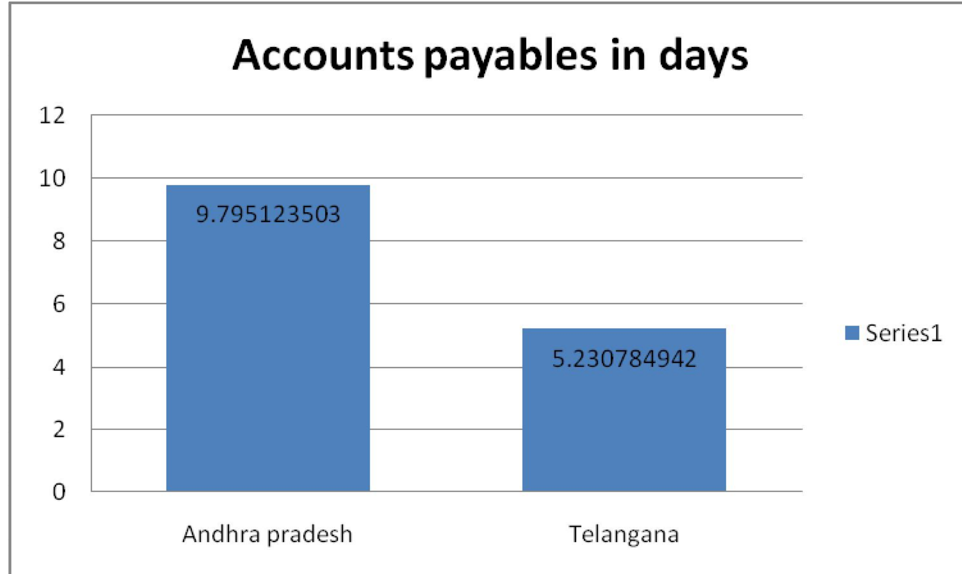
Source: Researcher’s Computation

Table depicts that at 5% level of significance, the calculated value of F (8.376) is greater than the table value (2.70) and seemed to be a significant difference in Inventory in days among the selected sugar industries in the states of Andhra Pradesh and Telangana. Hence the hypothesis is rejected. The P-value is 0.00, so the effects would be statistically significant.

Further observes there is no significant difference in accounts receivable in days between the years (2005-2006 to 2014-2015) of the selected sugar industries as the calculated value of F (0.59) is less than the table value (2.32). Hence, the null hypothesis is accepted .The P-value is 0.00, so it is statistically significant.

FIGURE 4.2.12

ACCOUNT PAYABLE IN DAY'S RATIO STANDARD DEVIATION OF ANDHRA PRADESH AND TELANGANA STATES



Source: Compiled through SPSS Version – 20.

The figure depicts that deviation among the units of Andhra Pradesh and Telangana and it is seemed to Accounts payable days is higher in Andhra Pradesh with 9.79 as compare to Telangana state. Hence Andhra Pradesh selected sugar industries are taking to pay to the creditors more days than the Telangana state units.

Hypothesis

Null Hypothesis -$H_0$12: There is no significant difference in the level of Accounts payable in days among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

TABLE 4.2.12

ANOVA - ACCOUNTS PAYABLES IN DAYS

ANOVA							
	Sum of Squares	Df	Mean Square	F – Value	P-value	F - critical	Sig.
Between Groups	926.267	8	115.783	5.376	0.002	2.70	Yes
Within Groups	28.782	10	2.878	2.637	0.831	2.32	No
Total	955.048	18					

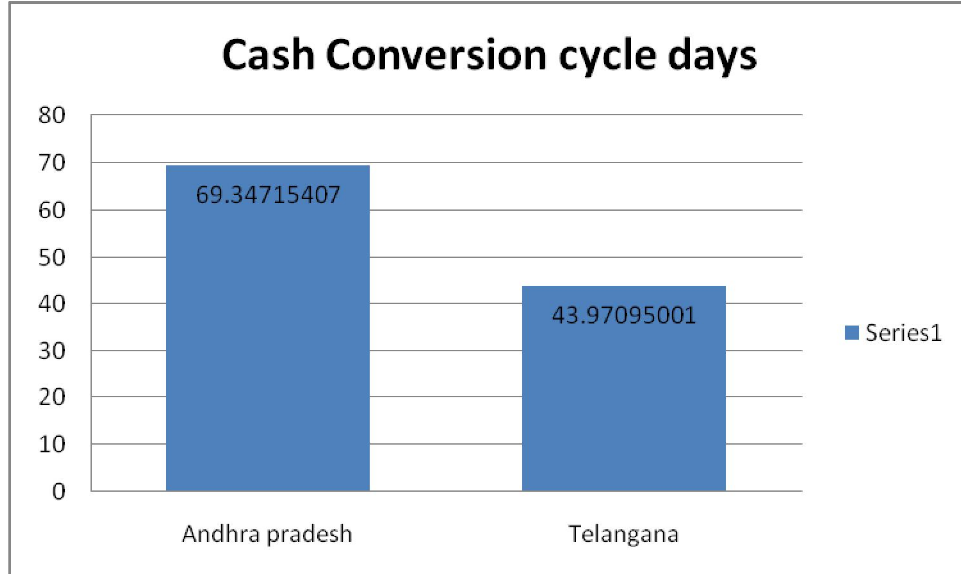
Source: Researcher’s Computation

Table depicts that at 5% level of significance, the calculated value of F (5.376) is greater than the table value (2.70) and seemed to be a significant difference in Inventory in days among the selected sugar industries in the states of Andhra Pradesh and Telangana. Hence the hypothesis is rejected. The P-value is 0.00, so the effects would be statistically significant.

Further observes there is significant difference in accounts payable in days between the years (2005-2006 to 2014-2015) of the selected sugar industries as the calculated value of F (2.637) is greater than the table value (2.32). Hence, the null hypothesis is rejected. The P-value has been recorded more than 0.05, so the effects would be statistically non-significant.

FIGURE 4.2.13

CASH CONVERSION CYCLE DAY'S STANDARD DEVIATION OF ANDHRA PRADESH AND TELANGANA STATES



Source: Compiled through SPSS Version – 20.

The figure depicts that deviation among the units of Andhra Pradesh and Telangana and it is seemed to Cash conversion cycle days is higher in Andhra Pradesh with 69.34 as compare to Telangana state units.

Hypothesis

Null Hypothesis -$H_0$13: There is no significant difference in the level of cash conversion cycle days among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

TABLE 4.2.13

ANOVA - CASH CONVERSION CYCLE DAYS

ANOVA							
	Sum of Squares	Df	Mean Square	F – Value	P-value	F - critical	Sig.
Between Groups	1026.289	8	128.286	6.383	0.000	2.70	Yes
Within Groups	38.671	10	3.867	1.627	0.27	2.32	No
Total	1064.96	18					

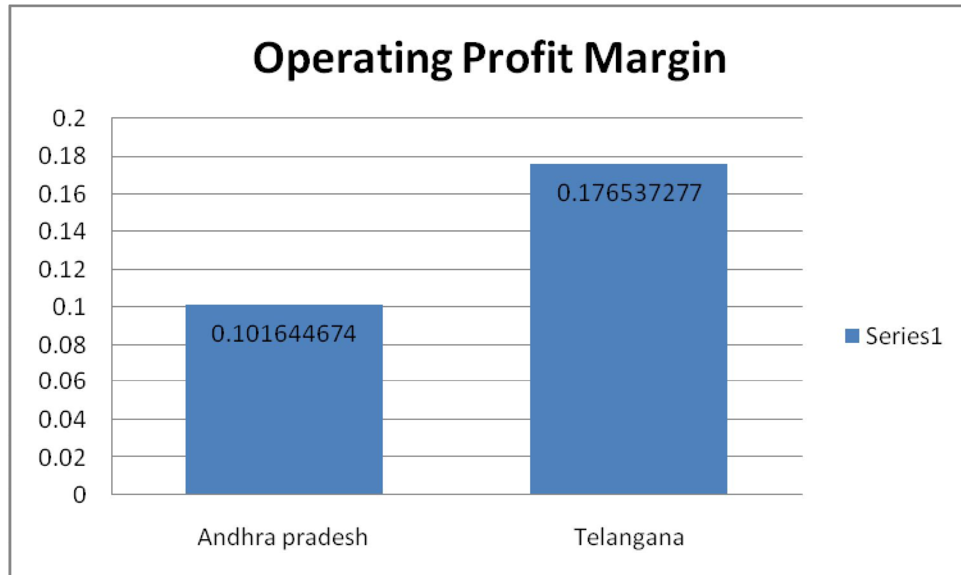
Source: Researcher's Computation

Table depicts that at 5% level of significance; the calculated value of F (6.383) is greater than the table value (2.70) and seemed to be a significant difference in cash conversion cycle days among the selected sugar industries in the states of Andhra Pradesh and Telangana. Hence the hypothesis is rejected. The P-value is 0.00, so the effects would be statistically significant.

Further observes there is no significant difference in cash conversion cycle days between the years (2005-2006 to 2014-2015) of the selected sugar industries as the calculated value of F (1.637) is less than the table value (2.32). Hence, the null hypothesis is accepted. The P-value has been recorded more than 0.05, so the effects would be statistically non-significant.

FIGURE 4.2.14

OPERATING PROFIT MARGIN'S STANDARD DEVIATION OF ANDHRA PRADESH AND TELANGANA STATES



Source: Compiled through SPSS Version – 20.

The figure depicts that deviation among the units of Andhra Pradesh and Telangana and it is seemed to operating profit margin deviation is higher in Telangana with 0.176 as compare to Andhra Pradesh state. Hence, concluded that Telangana's sugar industries pricing strategy and operating efficiency is better than the Andhra Pradesh state units.

Hypothesis

Null Hypothesis -$H_0$14: There is no significant difference in the level of operating profit margin among the selected sugar industries and between the states of Andhra Pradesh and Telangana.

TABLE 4.2.14

ANOVA - OPERATING PROFIT MARGIN

ANOVA							
	Sum of Squares	Df	Mean Square	F – Value	P-value	F - critical	Sig.
Between Groups	1257.261	8	157.438	5.176	0.000	2.70	Yes
Within Groups	169.264	10	16.924	0.38	1.000	2.32	No
Total	1426.525	18	174.362				

Source: Researcher’s Computation

Table depicts that at 5% level of significance, the calculated value of F (5.17) is greater than the table value (2.70) and seemed to be a significant difference in operating profit margin among the selected sugar industries in the states of Andhra Pradesh and Telangana states. Hence the hypothesis is rejected. The P-value is 0.00, so the effects would be statistically significant.

Further observes there is no significant difference in operating profit margin between the years(2005-2006 to 2014-2015) of the selected sugar industries as the calculated value of F (0.84) is less than the table value (2.32). Hence, the null hypothesis is accepted .The P-value has been recorded more than 0.05, so the effects would be statistically non-significant.

SECTION -3

4.3 CORRELATION BETWEEN WORKING CAPITAL COMPONENTS WITH RETURN ON TOTAL ASSETS

Hypothesis

Null Hypothesis -$H_0$15: There is no relationship of working capital components with the ROTA of selected sugar units of Andhra Pradesh.

TABLE 4.3.1

CORRELATION BETWEEN WORKING CAPITAL COMPONENTS WITH ROTA OF SELECTED SUGAR UNITS OF ANDHRA PRADESH

	Andhra sugar	Empee Sugar	Jeypore Sugar	Kcp Sugar	NavaBharat Sugar	Parry's Sugar	Prudential Sugars	Sagar Sugars	Suddala gunta Sugars
Current ratio									
Co-efficient of Correlation	-0.3383	-0.1173	0.6619	0.9607	0.9526	-0.4427	0.4275	0.1582	0.772
t' value	-1.2999*	-1.2755*	0.9606*	1.5475*	1.3386*	-2.0364*	1.0495*	0.7887*	0.2244*
Quick Ratio									
Co-efficient of Correlation	0.3267	0.1378	0.5846	-0.8866	0.9579	0.7828	0.7326	-0.567	0.8413
t' value	0.1794*	1.2755*	0.2244*	-0.4953*	1.4098*	0.1999*	0.9606*	-1.2755*	2.5273*
Gearing Ratio									
Co-efficient of Correlation	-0.1169	-0.6834	0.4111	-0.4816	-0.8629	-0.7084	0.0705	-0.0381	0.4703
t' value	-3.4753*	-0.3329*	0.7887*	-2.4968*	-0.5089*	-0.9777*	1.3548*	1.966*	1.0495*
Trade Debtors To Current Asset Ratio									
Co-efficient of Correlation	-0.1221	-0.5894	0.4228	-0.2853	0.4223	0.4149	-0.9159	-0.552	0.5394
t' value	-0.2696*	-2.966*	1.7995*	-0.542*	1.0502*	2.8388*	-2.5273*	-2.966*	6.3761*
Stock to Current Assets Ratio									
Co-efficient of Correlation	0.2686	-0.3429	-0.3216	0.1264	0.879	0.2069	0.9141	-0.6663	0.9336
t' value	0.4531*	-0.1078*	-2.5273*	3.4753*	1.8724*	1.957*	2.966*	-1.4098*	2.0636*

Current Assets to Total Assets Ratio									
Co-efficient of Correlation	0.6618	-0.0283	-0.48	0.6015	-0.3618	-0.432	0.4196	0.9956	-0.1883
t' value	1.3972*	-2.8388*	-1.3548*	1.3548*	-1.2897*	-3.558*	7.1966*	2.1296*	-0.7887*
Current Liabilities To Total Assets Ratio									
Co-efficient of Correlation	0.0949	-0.0633	0.5628	0.7237	0.4111	0.6222	0.6172	0.1725	0.3728
t' value	1.098*	-1.2755*	0.9606*	1.5475*	1.3386*	2.0364*	1.2755*	2.0636*	1.2897*
Current Assets Turnover Ratio									
Co-efficient of Correlation	0.3452	0.2638	0.1726	-0.3481	0.2097	0.3738	0.4738	0.2736	0.2736
t' value	1.0168*	0.3329*	0.7887*	-2.4968*	0.5089*	0.9777*	0.5068*	1.2897*	2.9001*
Operating Profit Margin									
Co-efficient of Correlation	0.7275	0.6283	0.2735	-0.2174	0.4461	0.0365	0.2635	0.0036	0.1826
t' value	4.4037*	1.8118*	3.4363*	-3.0541*	0.5422*	1.5915*	6.3761*	1.2999*	2.9001*
Firm Size									
Co-efficient of Correlation	0.2736	0.6373	0.3635	-0.5368	0.0991	0.1526	0.3577	0.8351	0.0376
t' value	8.8264*	4.8293*	5.214*	-1.0976*	1.3177*	9.4368*	0.7887*	2.4968*	0.5089*
Total Assets Turnover Ratio									
Co-efficient of Correlation	0.5273	0.7325	0.1623	-0.1882	-0.1925	0.2736	0.2635	0.6752	-0.2853
t' value	1.0502	0.2696	2.966	-1.7995	-0.542	1.0502	2.5273	3.4753	-1.8724
Inventory in Days									
Co-efficient of Correlation	0.7237	-0.3851	-0.2226	-0.6146	-0.7363	0.7828	0.2637	0.1264	-0.4223
t' value	5.3291*	-0.8419*	-7.1966*	-0.5068*	-2.1296*	1.5543*	1.3548*	1.3548*	-1.2897*
Accounts Receivables in Days									
Co-efficient of Correlation	0.7237	0.1264	0.879	0.1065	0.7326	-0.567	0.7366	-0.6015	-0.4149
t' value	1.3375*	0.1999*	6.3761*	1.2999*	2.9001*	-3.0442*	3.4363*	-1.0502*	-1.4098*

Accounts Payables in Days									
Co-efficient of Correlation	0.5273	0.2012	-0.1616	-0.1354	-0.6811	0.7682	-0.2086	-0.3481	-0.9159
t' value	0.6066*	0.1794*	-1.2755*	-0.2244*	-0.4953*	1.4098*	-0.9606*	-1.5475*	-1.3386*
Cash Conversion Cycle Days									
Co-efficient of Correlation	-0.2174	0.7237	0.5273	0.5225	0.2632	0.2737	0.2625	-0.3481	0.6251
t' value	-1.5475*	0.8419*	7.1966*	0.5068*	2.1296*	1.5543*	6.3761*	-3.4363*	1.3548*

Source: Researcher's Computation

Table represents that the co-efficient of correlation between working capital ratio and profitability in the Andhra Pradesh state of the selected sugars industries. Senthilmani Thuvarakan(2013) in their study have found that there is no significant relationship between the working capital components and profitability where as by Chemis Kiptoo Philip(2015) It was found that there is a significant negative relationship between variables of the working capital management and profitability. The following subsections discuss the results of correlation.

Current ratio:

KCP sugar & Nava Bharat sugar has positive and strongly correlation (0.9526 & 0.9607 respectively) with profitability whereas Andhra sugar, Empee, Parry's are negative correlation (-0.3383, -0.1173, -0.4275 respectively) with profitability. Prudential sugars, Suddalagunta sugars, Jeypore sugar & Sagar sugar are also positive moderately correlation with profitability (0.4275, 0.6619, 0.772&0.1582 respectively) during the period from (2005-2015).

Quick ratio:

Nava Bharat sugar has high positive correlation (0.9579) with profitability whereas KCP & Sagar sugar are negative correlation (-0.8866 & -0.567 respectively) with profitability. Parry's sugar, Prudential sugars, Suddalagunta sugars, Jeypore sugar & Andhra sugar are also positive correlation with profitability (0.7828, 0.7326, 0.8413, 0.5846 & 0.3267 respectively).

Gearing ratio:

Jeypore and Suddalagunta sugar has positive and moderately correlated with profitability (0.4111 & 0.4703 respectively). Remaining all sugar industries are negatively correlated with profitability such as Andhra, Empee, KCP, Nava Bharat, Parry's, Sagar sugar and their correlated values (-0.1169, -0.6384, -0.4816, -0.8629, -0.0381 respectively) during the period from (2005-2015).

Trade Debtors to current asset ratio:

Suddalagunta, Parry's, Jeypore, Nava Bharat has positive and moderately correlated with profitability (0.5394, 0.4223, 0.4149, 0.4228 respectively) where as Andhra, Empee, KCP, Prudential, Saga sugar industries are negative correlated with profitability and their correlated values are (-0.1221, -0.5894, -0.2853, 0.9159, -0.552 respectively) during the period from (2005-2015).

Stock to current assets ratio:

Suddalagunta, Prudential, Nava Bharat sugar industries has positive and strongly correlated with profitability (0.9336,0.9141 & 0.879,) where as Empee, KCP, Sagar sugar industries are negative correlated with profitability with profitability and

their correlated values are(-0.3429, -0.3216 & -0.6663 respectively) during the period from (2005-2015).

Current assets to total assets ratio:

Sagar sugar industries has positive and strongly correlated with profitability (0.9956). Andhra and KCP and prudential sugar industries are also positive and moderate correlated with profitability (0.6618,0.6015 & 0.4196 respectively) where as sugar industries like Empee, Jeypore, Nava Bharat and Suddalagunta are negatively correlated with profitability and their values are -0.0283,-0.48,-0.3618 &-0.1833.

Current liabilities to total assets ratio:

KCP, Nava Bharat and parry's sugar industries has positive and strongly correlated with profitability (0.7237, 0.6222, 0.6172). Jeypore, Suddalagunta and KCP sugar industries are also positive and moderate correlated with profitability (0.5628,0.3728 & 0.1725 respectively) where as only Empee sugar industries are negatively correlated with profitability (-0.3841).

Current assets turnover ratio:

Andhra, Empee, parry's and prudential sugar industries has positive and moderately correlated with profitability (0.3452, 0.3738 & 0.4738 respectively). Empee, Jeypore, Sagar, Suddalagunta sugar industries are also positive and slightly correlated with profitability (0.2638,0.2097,0.2736 &0.2736 respectively) where as only KCP sugar industries are negatively correlated with profitability (-0.3841).

Operating profit margin:

Andhra and Empee sugar industries has positive and strongly correlated with profitability (0.7275 & 0.6283 respectively).Nava Bharat sugar industries are also positive and moderated correlated with profitability (0.4461). Jeypore, Prudential, Suddalagunta, Parry's and Sagar sugar industries are positive and slightly correlated with profitability (0.2735, 0.2635, 0.1826, 0.0365 & 0.0036 respectively) .KCP sugar industries is negative correlated with profitability (-0.2174).

Firm size:

KCP sugar industries are negative correlated with profitability (-0.5368). Sagar and Empee sugar industries are positive and strongly correlated with

profitability (0.8351 and 0.6373) whereas Jeypore and prudential are moderately and remaining sugar such as Andhra, Nava Bharat, Suddalagunta sugar industries are positive and slightly correlated with profitability (0.2736, 0.1526, 0.0991 and 0.0376 respectively) during the period (2005-2015).

Total assets turnover ratio:

Empee, Sagar and Andhra sugar industries has positive and strongly correlated with profitability (0.7325, 0.6752 and 0.5273 respectively). Jeypore, Parry's and prudential sugar industries are positive and slightly correlated with profitability (0.1623, 0.2736 and 0.2635 respectively) whereas sugar industries like KCP, Nava Bharat and Suddalagunta are negatively correlated with profitability during the period (2005-2015).

Inventory in days

Andhra and parry's sugar industries has positive and strongly correlate with profitability (0.7325, 0.7366 respectively). Prudential and Sagar are also and slightly correlate with profitability whereas Empee, Jeypore, KCP, Nava Bharat and Suddalagunta are negatively correlate with profitability during the period (2005-2015).

Accounts receivable in days

Sugar industries such as parry's, Sagar and Suddalagunta sugars are negative correlated with profitability (-0.567,-0.6015 and -0.4149 respectively) whereas Andhra, Nava Bharat, prudential are positive and strongly correlated with profitability (0.7237, 0.7326 & 0.7366 respectively).

Accounts payable in days

Parry's and Andhra sugar industries are positive and one of the sugar industries is strongly correlated (0.7682) and other is moderately correlated (0.5273) respectively with profitability. Where as sugar industries such as Empee, Jeypor, KCP, Nava Bharat, prudential are Chemis Kiptoo Philip(2015)negatively correlated with profitability during the period (2005- 2015).

Cash Conversion cycle days

Empee and Suddalagunta are positive and strongly correlated whereas Jeypore and KCP sugars are moderately correlated with profitability. Andhra and Sagar Sugar industries are negatively correlated with profitability (-0.3481,-0.2174 respectively) during the period (2005 -2015).

Hypothesis

Null Hypothesis -$H_0$16: There is no relationship of working capital components with the ROTA of selected sugar units of Telangana state.

TABLE 4.3.2

CORRELATION BETWEEN WORKING CAPITAL COMPONENTS WITH ROTA OF SELECTED SUGAR UNITS OF TELANGANA STATE

	Delta Sugars	Gayathri Sugars	GMR Sugars	Kakatiya Sugars	Madhucon Sugars	Ndsl Sugars	Nsl Sugars	Shivashakti Sugars	Trident Sugars
Current ratio									
Co-efficient of Correlation	0.9607	-0.567	0.4703	0.0705	0.772	0.5225	-0.7084	-0.1173	0.9526
t' value	2.4968*	-2.966*	2.0636*	2.966*	0.2696*	2.966*	-1.957*	-0.3329*	0.5089*
Quick Ratio									
Co-efficient of Correlation	-0.8866	-0.0381	0.5394	-0.9159	0.8413	0.1582	-0.4149	0.1378	0.9579
t' value	-1.3548*	- 2.0636*	2.9001*	-0.5068*	1.098*	1.2755*	-0.9777*	0.9606*	1.2897*
Gearing Ratio									
Co-efficient of Correlation	-0.4816	-0.552	0.9336	0.9141	-0.1221	-0.5894	0.2069	-0.6834	-0.8629
t' value	-1.5475*	- 1.2755*	1.0495*	1.3548*	-0.2244*	-0.5068*	0.9777*	-1.2755*	- 1.3386*

Trade Debtors to Current Asset Ratio									
Co-efficient of Correlation	-0.2853	-0.6663	-0.1883	0.4196	0.2686	-0.3429	-0.432	-0.3216	-0.4223
t' value	-0.542*	- 1.4098*	-0.7887*	7.1966*	0.4531*	-0.1078*	-3.558*	-2.5273*	- 1.0502*
Stock to Current Assets Ratio									
Co-efficient of Correlation	0.1264	0.9956	0.3728	0.6172	0.6618	-0.0283	0.6222	-0.48	0.879
t' value	1.5475*	1.2897*	2.9001*	3.7654*	1.0168*	-0.3329*	1.5915*	-0.7887*	1.3386*
Current Assets to Total Assets Ratio									
Co-efficient of Correlation	0.6015	0.1725	0.2736	0.4738	0.0949	-0.0633	0.3738	0.5628	-0.3618
t' value	0.4953*	7.1966*	6.3761*	2.5273*	2.5273*	-0.7887*	2.8388*	1.2755*	-1.4098*
Current Liabilities To Total Assets Ratio									
Co-efficient of Correlation	0.7237	0.2736	0.1826	0.2635	0.3452	0.2638	0.0365	0.1726	0.4111
t' value	3.4753*	2.1296*	1.2897*	1.2755*	1.3972*	2.8388*	2.0364*	1.3548*	1.8724*
Current Assets Turnover Ratio									
Co-efficient of	-0.3481	0.0036	-0.4427	0.4275	0.7275	0.6283	0.1526	0.2735	0.2097

Correlation									
t' value	-2.4968*	1.2999*	-2.0364*	1.0495*	4.4037*	1.8118*	9.4368*	3.4363*	0.5089*
Operating Profit Margin									
Co-efficient of Correlation	-0.2174	0.8351	0.7828	0.7326	0.2736	0.7237	0.2736	0.3635	0.2632
t' value	-3.4753*	0.542*	0.7887*	1.3548*	1.7995*	0.5422*	1.4098*	1.8724*	0.2696*
Firm Size									
Co-efficient of Correlation	-0.3383	0.6752	0.6619	0.3577	0.5273	0.5273	0.7828	0.1623	-0.3481
t' value	-1.2999*	3.4753*	0.9606*	0.7887*	1.0502*	0.6066*	1.5543*	2.966*	- 3.4363*
Total Assets Turnover Ratio									
Co-efficient of Correlation	0.3267	0.0991	0.5846	0.2635	0.7237	-0.2174	-0.567	0.0376	0.6373
t' value	1.2755*	2.9001*	1.3548*	0.9606*	1.2999*	-0.1794*	-1.0502*	1.4098*	0.1999*
Inventory in Days									
Co-efficient of Correlation	-0.1169	-0.1925	0.4111	0.2637	-0.1882	0.4461	0.7682	-0.2853	0.7325
t' value	-7.1966*	-	6.3761*	6.3761*	-0.2244*	0.8419*	1.5475*	-1.3386*	1.5543*

		0.4953*							
Accounts Receivables in Days									
Co-efficient of Correlation	0.879	-0.7363	-0.4228	0.7366	-0.6146	-0.5368	0.1264	-0.4223	-0.3851
t' value	6.3761	-2.1296	-1.7995*	3.4363*	-0.5068*	-1.0976*	1.3548*	-1.2897*	-0.8419*
Accounts Payables in Days									
Co-efficient of Correlation	-0.1616	0.7326	0.6251	-0.2086	0.1065	0.2012	0.6015	-0.4149	-0.1264
t' value	-0.1794*	1.3177*	0.2244*	-2.5273*	5.3291*	1.5475*	3.0442*	-0.5089*	-4.8293*
Cash Conversion Cycle Days									
Co-efficient of Correlation	0.5273	-0.6811	0.643	0.2625	-0.1354	0.7237	-0.3481	-0.9159	0.2737
t' value	3.0541*	-2.4968*	0.1999*	0.9606*	-8.8264*	1.3375*	-1.0502*	-5.214*	2.1296*

Source: Researcher's Computation

Table represents that the co-efficient of correlation between working capital ratio and profitability performance of Telangana state of selected sugar industries the results are discussed as under:-

Current Ratio:

Delta sugars and trident sugars have positive strong correlation (0.9607, 0.9526) respectively with profitability whereas, Gayathri sugars, Nsl sugars and Shiva Shakti sugars are negatively correlated (-0.567, -0.7084, &-0.1173) with profitability. Gmr sugars, Kakatiya sugars and Madhucon sugars & Ndsl sugars are having moderate positive correlation with profitability (0.4703, 0.0705,0.772,0.5225) during the period from (2006-2015).

Quick Ratio:

Trident sugars and Madhucon sugars have high positive correlation (0.9579, 0.8413) respectively with profitability. Gmr sugars, Ndsl sugars, and shiva Shakti sugars (0.5394, 0.1582, 0.1378) are having moderate positive correlation with profitability. Whereas, delta sugars, Gayathri sugars, Kakatiya sugars, Nsl sugars are negatively correlated (-0.8866, -0.0381, -0.9159, -0.4149) during the period from 2005-2015.

Gearing Ratio:

The highest positive correlation is found with GMR Sugars, and Kakatiya sugars (0.9336, 0.9141) respectively with profitability. Delta sugars, Gayathri sugars, Madhucon sugars, Ndsl sugars, Shiva Shakthi sugars and trident sugars with (-0.4816, -0.552, -0.1221, -0.5894, -0.6834, -0.8629) respectively are having negative correlation and whereas Nsl sugars (0.2069) are having moderate positive correlation with profitability during 2006-2015.

Trade Debtors To Current Asset Ratio:

During the year 2005-2015, the negative correlation is observed in delta sugars, Gayathri sugars, Gmr sugars, Ndsl sugars, Nsl sugars, Shiva shakti sugars & trident sugars with (-0.2853, -0.6663, -0.1883, -0.3429, -0.432, -0.3216 & -0.4223) respectively with profitability. whereas, Kakatiya and madhucon sugars are moderately correlated with (0.4196 & 0.2686) respectively with profitability.

Stock to Current Assets Ratio:

During the year 2005-2015, Gayathri sugars, trident sugars are highly correlated positive with (0.9956, 0.8791) respectively with profitability. Whereas,

delta sugars, GMR sugars, Kakatiya sugars, Madhucon sugars, Nsl sugars, are correlated moderately with (0.1264, 0.3728, 0.6172, 0.6618, 0.6222) respectively with profitability. Ndsl sugars & Shiva Shakthi sugars are negatively correlated (-0.0283 & -0.48) respectively.

Current Assets to Total Assets Ratio:

Madhucon sugars and delta sugars are having high positive correlation with (0.0949, 0.6015) respectively with profitability. Gayathri sugars, GMR sugars, Kakatiya sugars, Nsl sugars & Shiva Shakthi sugars with (0.1725, 0.2736, 0.4738, 0.3738 & 0.5628) are having moderate correlation respectively with profitability. Whereas, negative correlation is observed in Nsdl sugars & trident sugars (-0.0633 & -0.3618) respectively with profitability during 2005-2015.

Current Liabilities To Total Assets:

Delta sugars are having high positive correlation with (0.7237) with profitability. Whereas remaining Gayathri sugars, GMR sugars, Kakatiya sugars, Madhucon sugars, Ndsl sugars, Nsl sugars, Shiva Shakthi sugars, & trident sugars with (0.2736, 0.1826, 0.2635, 0.3452, 0.2638, 0.0365, 0.1726 & 0.4111) respectively are having moderate correlation with profitability.

Current Assets Turnover Ratio:

Madhucon sugars is having high positive correlation with 0.7275 with profitability. The Delta sugars & GMR sugars are negatively correlated (-0.3481 & -0.4427) with profitability. The moderate positive correlation is found in Gayathri sugars, Kakatiya sugars, Ndsl sugars, Nsl sugars, Shiva Shakthi sugars and trident sugars with (0.0036, 0.4275, 0.6283, 0.1526, 0.2735 & 0.2097) with profitability during the year 2005-2015.

Operating Profit Margin:

During the year 2005-2015, high positive correlation is observed with Gayathri sugars, GMR sugars, Kakatiya sugars, & Nsdl sugars (0.8351, 0.7828, 0.7326, 0.7237) respectively with probability. Delta sugars, are negatively correlated (-0.2174) with profitability. Whereas, Madhucon sugars, Nsl sugars, and trident sugars are moderately correlated (0.2736, 0.2736, 0.2632) respectively with profitability.

Firm Size:

High positive correlation is observed in Nsl sugars & Gayathri sugars (0.7828, 0.6752) with profitability. Trident sugars & delta sugars are having negative correlation (-0.3383, -0.3481) respectively with profitability. Whereas, GMR sugars, Madhucon sugars, Kakatiya sugars, NSDL sugars and Shiva Shakthi sugars (0.6619, 0.3577, 0.5273, 0.5273, 0.1623) respectively with profitability.

Total Assets Turnover Ratio:

During the period 20005-2015, the highest positive correlation is depicted in Madhucon sugars (0.7237) followed by trident sugars (0.6373). NDSL & NSL sugars are having negative correlation (-0.2174, -0.567) respectively with profitability. Whereas delta sugars, Gayathri sugars, GMR sugars, Kakatiya sugars, & Shiva Shakthi sugars are moderately correlated (0.3267, 0.0991, 0.5846, 0.2635, & 0.0376) respectively with profitability.

Inventory in Days:

Nsl sugars, trident sugars are having high positive correlation (0.7682, 0.7325) respectively with profitability. The Delta sugars, Gayathri sugars, Madhucon sugars & Shiva Shakthi sugars (-0.1169, -0.1925, -0.1822 & -0.2853) are slightly correlated with profitability. GMR sugars, Kakatiya sugars Ndsl & trident sugars (0.4111, 0.2637, 0.4461 & 0.7325) respectively are moderately correlated during the year 2005-2015.

Accounts Receivable days:

Delta sugars & Kakatiya sugars are having high positive correlation (0.8791, 0.7366) with profitability. Gayathri sugars, Gmr sugars, madhucon sugars, Ndsl sugars, Shiva Shakthi sugars & trident sugars are negatively correlated (-0.7363, -0.4228, -0.6146, -0.5368, -0.4223, -0.3851). The Nsl sugar is moderately correlated (0.1264) during the year 2005-2015.

Accounts Payable days:

Gayathri sugars & GMR sugars are having high positive correlation (0.7326, 0.6251) respectively with profitability, delta sugars, Kakatiya sugars, Shiva Shakthi sugars & trident sugars are negatively correlated (-0.1616, -0.2086, -0.4149, -0.1264)

respectively. The Madhucon & Ndsl sugars are moderately correlated (0.1065 & 0.2012) respectively with profitability during the year 2005-2015.

Cash Conversion Cycle Days:

Ndsl sugars and delta sugars are having high positive correlation (0.7237, 0.5273) respectively with profitability. Gayathri sugars, madhucon, nsl sugars, shivashakti sugars are negatively correlated (-0.6811, -0.1354, -0.3481, -0.9159) respectively. Whereas, GMR sugars, Kakatiya sugars and trident sugars (0.643, 0.2625, 0.2737) are having moderate correlation during the year 2005-2015 respectively with profitability.

SECTION- 4

4.4 IMPACT OF WORKING CAPITAL COMPONENTS ON ROTA

Hypotheses

Null Hypothesis -$H_0$17 : There is no impact of working capital components on Return on total assets of sugar manufacturing units of Andhra Pradesh state.

TABLE 4.4.1

IMPACT WORKING CAPITAL COMPONENTS ON ROTA OF SUGAR UNITS OF ANDHRA PRADESH STATE

ROTA (dependent variable)				
Independent Variables	**B coefficient**	**t value**	**R2 value**	**F value**
CATA	0.356*	2.637	0.827	7.271
GR	0.162*	3.918	0.661	11.67
CR	0.211*	2.894	0.682	9.124
SCA	0.286*	2.606	0.742	11.93
CATR	-0.288*	-2.709	0.698	15.210
OPMR	-0.151*	-1.187	0.725	12.344
AR	-0.311*	-2.894	0.682	16.165
AP	0.626*	2.783	0.605	8.721
CCC	-0.278	-3.715	0.725	9.827
CLTA	0.105	4.279	0.527	10.663
ATOR	0.267*	2.661	0.724	9.825

*Significant at 5 percent. Source: Researcher's Computation

Chatterjee(2012) The regression model shows that the ratios like Current Ratio and Inventory Turnover Ratio have highly significant positive coefficient with profitability and Quick Ratio has significant negative coefficient with profitability. Gopinathan Radhika, Ramachandran Azhagaiah(2012) used Regression analysis in their study. The table depicts and found the linear regression beta coefficient values of working capital components variables influence at 5% on ROTA selected sugar manufacturing units. The Current assets to turn over ratio (-0.288), Operating profit margin ratio (-0.151), Accounts receivable (-0.311) and Cash Conversion Cycle (-0.278) are having the negative influence on the Return on total Assets. The Account payable (0.626) influence is observed high on ROTA. The R^2 values for all working

capital components variable are found above 60% i.e. The firm size, Cash Conversion Cycle and Current Liabilities to Total assets are found to be non significant at 5% under linear regression model.

Hypotheses

Null Hypothesis -$H_0$18: There is no impact of working capital components on Return on total assets of sugar manufacturing units of Telangana State.

TABLE 4.4.2

IMPACT OF WORKING CAPITAL COMPONENTS ON ROTA OF SUGAR UNITS OF TELANGANA STATE

ROTA (dependent variable)				
Independent Variables	**B coefficient**	**t value**	**R2 value**	**F value**
CATA	0.162*	2.572	0.732	7.134
FS	0.323*	2.250	0.742	12.93
GR	-0.293*	-2.150	0.698	6.21
CR	-0.523*	-1.692	0.725	4.344
SCA	0.279*	2.738	0.632	6.271
CATR	0.374*	3.791	0.734	5.373
OPMR	0.532*	3.625	0.603	6.238
AR	0.378	4.572	0.572	3.631
AP	0.342*	2.718	0.682	3.165
CCC	-0.075*	-2.637	0.672	3.265
CLTA	0.037	3.621	0.563	4.749
ATOR	0.179*	4.627	0.725	5.729

*Significant at 5 percent Source: Researcher’s Computation

The table depicts the linear regression beta coefficient values of working capital components variables influence at 5% on working capital components influence is observed on ROTA. Cash conversion cycle days (-0.075), Gearing ratio (-0.293) and Current asset ratio (-0.523) are having the negative influence on the return on total assets. The Operating profit margin (0.532) influence is observed high on

ROTA. Chemis Kiptoo Philip(2015) was found a significant negative relationship between variables of the working capital management and profitability. The accounts receivables and Current liabilities to total assets are found to be non significant at 5 percent. The R^2 values for all working capital components variable are found above 60% i.e., the accounts receivable ratio and current liability to total assets correlation is found to be less than the base value (i.e., 60%) in linear regression.

SECTION -5

4.5 ANALYSE THE MEANS OF KEY WORKING CAPITAL COMPONENTS ARE SIGNIFICANTLY DIFFERENT AMONG THE SELECT UNITS

4.5.1 CALCULATION OF ANOVA IN ANDHRA PRADESH STATE:

Single factor analysis of variance for Andhra Pradesh is done on the three components of working capital i.e., Inventory in days, Accounts Receivables in days, Accounts Payable in days to find if the means of the working capital management components are significantly different.

Hypotheses

Null Hypothesis -$H_0$19: There is significant difference in Inventory in days among the selected sugar industries in the Andhra Pradesh state.

Null Hypothesis -$H_0$20: There is significant difference in Accounts Receivables among the selected sugar industries in the Andhra Pradesh state.

Null Hypothesis -$H_0$21: There is significant difference in Accounts Payables among the selected sugar industries in the Andhra Pradesh state.

TABLE 4.5.1

ANOVA IN SELECT SUGAR UNITS OF ANDHRA PRADESH STATE

ANOVA								
		Sum of Squares	Df	Mean Square	F – Value	P-value	F – critical	Sig.
Inventory in Days	Between Groups	272.417	8	34.052	5.276	0.000	3.18	Yes
	Within Groups	24424.250	64	381.628	1.725	0.14	2.03	No
	Total	24696.667	72	415.68				
Accounts Payable in Days	Between Groups	411.688	8	51.461	5.276	0.000	3.18	Yes
	Within Groups	20621.254	64	322.207	1.725	0.14	2.03	No
	Total	21032.942	72	373.668				
Accounts Receivable Days	Between Groups	493.942	8	61.742	5.276	0.000	3.18	Yes
	Within Groups	24372.713	64	68.323	1.725	0.14	2.03	No
	Total	24866.655	72	356.727				

Source: Researcher’s Computation

Table depicts that at 5% level of significance, the calculated value of F (5.276) is greater than the table value (3.18) and seemed to be a significant difference in three components of working capital among the selected sugar industries in the Andhra Pradesh states. Hence the hypothesis is rejected. The P-value is 0.00, so the effects would be statistically significant.

Further observes there is no significant difference in three components of working capital between the years of the selected sugar industries as the calculated value of F (1.05) is less than the table value (2.03). Hence, the null hypothesis is accepted. The P-value has been recorded more than 0.05, so the effects would be statistically non-significant.

4.5.2 CALCULATION OF ANOVA IN TELANGANA STATE:

Single factor analysis of variance for Telangana State is done on the three components of working capital management i.e., Inventory in days, Accounts Receivables in days, Accounts Payable in days to find if the means of the working capital management components are significantly different.

Hypotheses

Null Hypothesis -$H_0$22: There is significant difference in Inventory in days among the selected sugar industries in the Telangana state.

Null Hypothesis -$H_0$23: There is significant difference in Accounts Receivables among the selected sugar industries in the Telangana state.

Null Hypothesis -$H_0$24: There is significant difference in Accounts Payables among the selected sugar industries in the Telangana state.

TABLE 4.5.2

ANOVA IN SELECT SUGAR UNITS OF ANDHRA PRADESH STATE

ANOVA								
		Sum of Squares	Df	Mean Square	F – Value	P-value	F – critical	Sig.
Inventory in Days	Between Groups	1274.381	8	159.297	5.185	0.000	3.18	No
	Within Groups	36382.825	64	568.481	0.184	0.652	2.03	No
	Total	37657.206	72	727.778				
Accounts Payable in Days	Between Groups	283.572	8	35.446	4.612	0.000	3.18	Yes
	Within Groups	38251.574	64	597.679	2.371	0.61	2.03	No
	Total	38535.146	72	633.125				
Accounts Receivable Days	Between Groups	637.472	8	79.684	5.165	0.000	3.18	Yes
	Within Groups	38155.519	64	596.179	1.836	0.68	2.03	No
	Total	4452.991	72	675.863				

Source: Researcher’s Computation

Table depicts that at 5% level of significance, the calculated value of F (5.185) is greater than the table value (3.18) and seemed to be a significant difference in inventory in days among the selected sugar industries in the Andhra Pradesh states' whereas two other components F value (4.612 & 5.165) are also greater than the table value (3.18) and seemed to be account payable in days are significant difference among the selected sugar industries. Hence the hypothesis is rejected. The P-value is 0.00, so the effects would be statistically significant.

Further observes there is no significant difference in three components of working capital between the years of the selected sugar industries as the calculated value of F values is less than the table value (2.03). Hence, the null hypothesis is accepted. The P-value has been recorded more than 0.05, so the effects would be statistically non-significant.

5. FINDINGS, SUGGESTIONS AND CONCLUSION

5.1 FINDINGS OF THE STUDY

A critical analysis on the Impact of Working Capital Components on Corporate Profitability in two states of two states of Andhra Pradesh and Telangana was made in the preceding chapters of the present thesis. The present study on select 18 private sector sugar industries financial ratios of Andhra Pradesh and Telangana States" has brought to fore many interesting observations throwing light on the corporate profitability of select sugar industries. And furnish the conclusions that are drawn from the findings as well as recommendations aimed at achieving financial strength of the private sugar industries in both the states of Andhra Pradesh and Telangana, are as for further research.

TABLE 5.1

Acceptance / Rejection of formulated Hypothesis

Null Hypothesis	Test Conducted	Accepted or Rejected
➢ **$H_0$1:** There is no significant difference in the level of Current ratio among the selected sugar industries between the states of Andhra Pradesh and Telangana.	ANOVA	Rejected
➢ **$H_0$2:** There is no significant difference in level of Quick asset ratio among the selected sugar industries between the states of Andhra Pradesh and Telangana.	ANOVA	Rejected
➢ **$H_0$3:** There is no significant difference in the level of gearing ratio among the selected sugar industries and between the states of Andhra Pradesh and Telangana.	ANOVA	Rejected

➢ **$H_0$4:** There is no significant difference in the level of Trade debtors to current asset ratio among the selected sugar industries and between states of Andhra Pradesh and Telangana.	ANOVA	Rejected
➢ **$H_0$5:** There is no significant difference in the level of Stock to current assets ratio among the selected sugar industries and between the states of Andhra Pradesh and Telangana.	ANOVA	Rejected
➢ **$H_0$6:** There is no significant difference in the level of current assets to total ratio among the selected sugar industries and between the states of Andhra Pradesh and Telangana.	ANOVA	Rejected
➢ **$H_0$7:** There is no significant difference in the level of current liabilities to total asset ratio among the selected sugar industries and between the states of Andhra Pradesh and Telangana.	ANOVA	Rejected
➢ **$H_0$8:** There is no significant difference in the level of current assets turnover ratio among the selected sugar industries and between the states of Andhra Pradesh and Telangana.	ANOVA	Rejected
➢ **$H_0$9:** There is no significant difference in the level of firm size among the selected sugar industries and between the states of Andhra Pradesh and Telangana.	ANOVA	Rejected
➢ **$H_0$10:** There is no significant difference in the level of Inventory in days among the selected sugar industries and between the states of Andhra Pradesh and Telangana.	ANOVA	Rejected

➢ **$H_0$11:** There is no significant difference in the level Accounts receivables in days among the selected sugar industries and between the the states of Andhra Pradesh and Telangana.	ANOVA	Rejected
➢ **$H_0$12:** There is no significant difference in the level of Accounts payable in days among the selected sugar industries and between the states of Andhra Pradesh and Telangana.	ANOVA	Rejected
➢ **$H_0$13:** There is no significant difference in the level of cash conversion cycle days among the selected sugar industries and between the states of Andhra Pradesh and Telangana.	ANOVA	Rejected
➢ **$H_0$14:** There is no significant difference in the level of operating profit margin among the selected sugar industries and between the states of Andhra Pradesh and Telangana.	ANOVA	Rejected
➢ **H015:** There is no relationship of working capital components with the ROTA of selected sugar units of Andhra Pradesh.	Correlation Analysis	Rejected
➢ **$H_0$16:** There is no relationship of working capital components with the ROTA of selected sugar units of Telangana state.	Correlation Analysis	Rejected
➢ **$H_0$17 :** There is no impact of working capital components on Return on total assets of sugar manufacturing units of Andhra Pradesh state	Linear Regression	Rejected
➢ **$H_0$18:** There is no impact of working capital components on Return on total assets of sugar manufacturing units of Telangana State.	Linear Regression	Rejected

➢ **$H_0$19:** There is significant difference in Inventory in days among the selected sugar industries in the Andhra Pradesh state.	Single factor ANOVA	Accepted
➢ **$H_0$20:** There is significant difference in Accounts Receivables among the selected sugar industries in the Andhra Pradesh state.	Single factor ANOVA	Accepted
➢ **$H_0$21:** There is significant difference in Accounts Payables among the selected sugar industries in the Andhra Pradesh state.	Single factor ANOVA	Accepted
➢ **$H_0$22:** There is significant difference in Inventory in days among the selected sugar industries in the Telangan state.	Single factor ANOVA	Accepted
➢ **$H_0$23:** There is significant difference in Accounts Receivables among the selected sugar industries in the Telangana state.	Single factor ANOVA	Accepted
➢ **$H_0$24:** There is significant difference in Accounts Payables among the selected sugar industries in the Telangana state.	Single factor ANOVA	Accepted

5.1.1. Findings related to working capital management and profitability

In the state of Andhra Pradesh for the study period,

- The average current ratio, quick ratio among the select sugar companies in the state of Andhra Pradesh recorded 1.5025 times, 0.5927 times respectively indicating the inability of management in maintaining sufficient current asset to meet with current liabilities.
- Selected sugar factories particularly with respect to current ratio were not showing satisfactory performance except Nava Bharat Sugars (3.039 times).
- The highest average gearing ratio (i.e., 55.5359 times) was found in Jeypore sugars and average Gearing ratio among the select sugar companies in the

state of Andhra Pradesh was 12.9587 times that indicates the units are in financial crisis.

- The average trade debtors to current assets ratio of the selected sugar manufacturing Companies of Andhra Pradesh recorded 0.2403.
- The average stock to current assets ratio was found to be 0.5949 times. Hence select sugar units in the state of Andhra Pradesh were in a safe position with respect to maintaining safety stock.
- The average current assets turnover ratio and the average total assets turnover ratio among the select units of Andhra Pradesh were 0.6954 times, 1.3479 times respectively.
- The average inventory in days was found to be least in Sagar Sugars (83 days) and highest in Jeypore sugars (258 days). The units of state of Andhra Pradesh were taking (153 days) in converting the inventories into cash.
- The highest average accounts receivables in days (31days) was found in Empee sugars and least found in Prudential Sugars(23 days). Among the select units of Andhra Pradesh average receivables in days was 28 days.
- Cash Conversion days of Sagar Sugars(30 days) was found very low among the select units followed by Suddalagunta sugars(56 days), Prudential Sugars(57 days), Nava Bharat Sugars(74 days), Empee Sugars(87 days), Andhra Sugars(106 days), Parrys Sugars(172 days), KCP Sugars(195 days), Jeypore Sugars(226 days).
- Operating profit margin ratio of Empee sugars and Sagar sugars was decreasing year after year throughout the study period particularly from 2012-16. The highest average ratio was found in Nava Bharat Sugars (0.3105), Andhra Sugars(0.2217), KCP Sugars(0.1629), Jeypore sugars(0.1330), Parrys sugar(0.0989), Suddalagunta(0.0735), Prudential Sugars(0.0357), Sagar Sugars(0.01466) and Empee sugars(0.0048).

In the state of Telangana for the study period,

- The average current ratio, quick ratio among the select sugar companies in the state of Telangana recorded 1.7939 times, 0.5927 times respectively. The liquidity position of units is not at satisfactory level.

- The current ratio of in Telangana state sugar units is not satisfactory except Kakatiya sugars (3.663), Trident sugars (2.5154) and Gayathri sugars (2.195).
- The highest average gearing ratio (i.e., 16.27599 times) was found in Madhucon sugars and average Gearing ratio among the select sugar companies in Telangana recorded 3.0244 times indicates that the units are in financial crisis.
- The average trade debtors to current assets ratio of the selected sugar manufacturing Companies of Andhra Pradesh recorded 0.1246.
- The average stock to current assets ratio was found to be 0.5418 times. Hence the Companies of Telangana state were in a safe position with respect to maintaining safety stock.
- The average current assets turnover ratio and the average total assets turnover ratio among the select units of Telangana were 0.7893 times, 2.4988 respectively.
- With respect to Inventory days of sugar companies in Telangana State least was NDSL sugars (73 days) where as highest was Gayatri sugars (205 days). The average Inventory days among the select units was found to be 105 days.
- The average accounts receivables days was found least in Kakatiya sugars (i.e., 22 days) where as highest in Gayatri sugars and Delta sugars (i.e., 32 days). Among the select units in Telangana the average accounts receivables in days was 27 days.
- The Cash Conversion period of select units in Telangana Madhucon Sugars (26 days) stood in first, followed by GMR sugars (29 days), NSDL Sugars (35 days), NSL Sugars (35 days), Shivashakti Sugars (44 days), Delta Sugars (47 days), Trident Sugars (52 days), Kakatiya Sugars (76 days) and Gayathri Sugars (167 days).
- NSL sugars (0.6000) stood at first followed by trident sugars (0.3290), GMR sugars (0.1896), Kakatiya sugars (0.1598), Madhucon Sugars (0.1475), NDSL sugars (0.1066), Gayathri sugars (0.1031), Shivashakti sugars (0.0429) and Delta sugars (0.0382) with respect to higher operating profits during the study period.
- Andhra Sugars (0.2315) stood at first followed by, Navabharat Sugars (0.2110), Jeypore Sugars (0.1871), KCP Sugars (0.1791), Parrys Sugar

(0.0702), Sagar Sugars (0.04005), Empee Sugars (0.0384), Prudential sugars (0.03101), and Suddalagunta sugars (0.0022) with respect to maximization of Return on Total Assets during the study period.

- Shivashakti sugars (0.2986) stood at first followed by Kakatiya sugars (0.17651), Madhucon sugars (0.1534), NSL sugars (0.1335), GMR sugars (0.1034), Trident sugars (0.0999), Gayatri sugars (0.0658), Delta sugars (0.0549) and NDSL sugars (0.0446) with respect to Return on total assets during the study period.

5.1.2. Findings related to comparative analysis of working capital management between Andhra Pradesh and Telangana

- The overall liquidity performance of the sample units recorded unsatisfactory performance. Andhra Pradesh select sugar manufacturing units are fluctuating and never reaching the standard.

- The sugar companies of Telangana state has a better performance in term of liquidity than select units of Andhra Pradesh during the study period.

- There was a negative trend in Telangana state select sugar units(-0.3780 time) in 2011-12. Thus, select sugar units of Andhra Pradesh state has maintained reasonable debtors proportion during the study period.

- Telangana sugars units recorded consistency in current liabilities position during the study period. The select sugar units of Andhra Pradesh state has increase in current liabilities extensively in the year 2013-14 (1.0852 times) and 2014-2015(2.1425 times). Hence short term liability position of select units of Andhra Pradesh was not efficient than sugar companies of Telangana state.

- The select sugar companies in Andhra Pradesh showing inefficiency utilizing their assets Thus, Andhra Pradesh state units has not effectively utilized assets in generating revenue during the study period. The select units of Telangana was better utilizing their asset to generate revenue in 2005-06(3.1181 times) and 2006-07(3.0218 times) then showing declining trend.

- The select sugar units of Andhra Pradesh due to high investment in stock indicating inefficient management of inventory and slow movement of

inventory during the study period. Telangana sample units are showing better performance in converting their inventory in cash.

- It is observed that from the year 2005-2006, there is some fluctuations in Andhra Pradesh sugar units & Telangana state units. Thus, both the state's select sugar units have maintained effective accounts receivables in days during the study period.
- Telangana select units are efficient in terms of cash conversion period than select units of Andhra Pradesh state during the study period.
- The average operating profit margin of both the state's manufacturing units due to variations in cost of goods sold and operating expenses is not satisfactory, there was a negative operating profit margin 2008-09(-1.0063) in Telangana manufacturing units. All the select units are showing inefficiency in maintaining control on their operating expenses.
- It is observed that from the year 2005-2006, there is a constant decrease till 2009-2010, in both the states of manufacturing units, there was a decline in Return on total assets. In 2014-15 shows The average return on total assets in the state of Andhra Pradesh worked out to be -0.0296 percent and -0.0104 percent in Telangana state. Hence all units shows inefficiency of management in utilizing its assets to generate profits.

5.2. FINDING OF STATISTICAL ANALYSIS:

5.2.1 Working capital components relationship between the Return on Total assets of the Selected Andhra Pradesh state Sugar manufacturing Units.

- The correlation analysis of Current ratio with return on total assets of Andhra Pradesh selected sugar manufacturing units result reveals that KCP sugar and Nava Bharat sugars (0.9607 and 0.9526) are strongly correlation. The Andhra sugar, Empee and parry's are found to be slightly moderate negative correlation (-0.3383, -0.1173 and -0.4275) between the Current asset ratio to Return on total assets.
- The correlation analysis reveals that the Inventory in Days of Andhra and parry's sugar industries have strong correlation with the return on total assets (0.7325, 0.7366 respectively). The Empee (-0.3851), Jeypore (-0.2226), KCP

(-0.6146), Nava Bharat (-0.7828) and Suddalagunta (-0.4223) are negatively correlate with return on total assets during the period (2006-2015).

- The account receivables in days of the select sugar manufacturing units of Andhra Pradesh state with the return on total assets are found to be positive correlation for Andhra sugars (0.7237), Empee (0.1264), Jeypore (0.879), KCP sugars (0.1065), Nava Bharath (0.7326) and Prudential sugars (0.7366). It has been also observed that there is negative correlation for the sugar manufacturing units of Parry's (-0.567), Sagar sugar (-0.6015) and Suddalagunta (-0.4149) with return on total assets.
- The correlation analysis of account payables in days for the selected nine manufacturing industries shows relationship with the return on total assets result found that the Andhra sugars (0.5273), Empee (0.2012), Parry's sugars (0.7682) positively correlated. The analysis result also reveals that the Jeypore (-0.1616), KCP sugars (-0.1354), Nava bharat (-0.6811), Prudential sugars (-0.2086), Sagar sugars (-0.3481) and Suddalagunta (-0.9159) are negative correlated with the return on total assets of the selected sugar manufacturing units of Andhra Pradesh.
- The Andhra Pradesh selected sugar units Cash Conversion Cycle days have significant relationship with ROTA result reveals that the Andhra sugars (-0.2174), and Sagar sugars (-0.3481) are negative relationship with ROTA. Where as Empee (0.7237), Jeypore (0.5225), KCP sugars (0.5225), Nava Bharat (0.2632), Parry's (0.2737), Prudential sugars (0.2625) and Suddalagunta (0.6251) are found a positive relationship with ROTA.

5.2.2 Relationship between Working capital components the Return on Total assets of the Selected Telangana state Sugar manufacturing Units.

- The Telangana state selected sugar units current asset ratio have significant relationship with Return on total assets result depicts that the delta sugars (0.9607) and trident (0.9526) sugars shows positive strong correlation with ROTA. The Gayathri sugars, NSL sugars and Shiva Shakti sugars are recorded negative correlation (-0.567, -0.7084, & -0.1173) with Return on total assets.

- The relationship between Inventory in days with ROTA indicates that the Nsl sugars (0.7682), trident sugars (0.7325) are having strong positive correlation. The Delta sugars, Gayathri sugars, Madhucon sugars & Shiva Shakthi sugars (-0.1169, -0.1925, -0.1822 & -0.2853) are slightly negatively correlated with ROTA of the sugar units of Telangana state.
- The relationship between the Accounts Receivables in days with ROTA of selected sugar units shows that the Delta sugars (0.8791) & Kakatiya sugars (0.7366) have strong positive correlation. Where Account receivable days of Gayathri sugars (-0.7363), GMR sugars (-0.4228), Madhucon sugars (-0.6146), Ndsl sugars (-0.5368), Shiva Shakthi sugars (-0.4223) & trident sugars (-0.3851) are negatively correlated with the ROTA.
- Accounts Payables in days of selected sugars units of have significant relationship with the ROTA. Gayathri sugars & GMR sugars are having high positive correlation (0.7326, 0.6251). The Delta sugars (-0.1616), Kakatiya sugars (-0.2086), Shiva Shakthi sugars (-0.4149), & trident sugars (-0.1264) accounts payable are negatively correlated with ROTA during the year 2006-2015.
- It has been observed that the Cash Convertible Cycle of the selected sugars units' of the Telangana state have significant relationship with the ROTA. NDSL sugars and delta sugars are having high positive correlation (0.7237, 0.5273) respectively with ROTA. The Gayathri sugars (-0.6811), Madhucon (-0.1354), NSL sugars (-0.3481), Shiva Shakthi sugars (-0.9159) are negatively correlated of cash conversion cycle with ROTA of the selected sugar units of Telangana state.

5.2.3 The working capital Components impact on the Return on Total Assets of Andhra Pradesh and Telangana States Selected Sugar Manufacturing Units.

- The Linear regression beta coefficient values depict that the Andhra Pradesh Selected sugar manufacture units Return on total assets got negatively influenced by working capital components viz., the Current assets to turn over ratio (-0.288), Operating profit margin ratio (-0.151), Accounts receivable (-0.311) and Cash Conversion Cycle (-0.278).

- The beta coefficient value of linear regression shows that the Accounts Payable ratio of the Andhra Pradesh state sugar units had influenced positively (0.626) to the Return on Total Assets during the study period 2005-2015.
- It has been found that the Telangana state sugar units return on total assets got negatively influenced by the working capital components viz., Gearing ratio (-0.293), Current assets ratio (-0.523) and cash conversion cycle (-0.075).
- The beta coefficient value of linear regression indicates that among the working capital components of Telangana states' the operating profit margin (0.532) is found to be positively influenced the return on total assets.

5.3 SUGGESTIONS OF THE STUDY

Keeping in view the observations relating to the study the following measures are suggested which would go a long way to improve the profitability with working capital component efficient management of the two states of two states i.e., Andhra Pradesh and Telangana States.

- The select units of Andhra Pradesh and Telangana states has to take measures to maintain adequate bank and cash balances to overcome the problems of liquidity and to improve the liquidity position.
- The study observed that accounts receivable is having the significant and negative regression with ROTA. Hence it is suggested the firms should decrease the number of accounts receivable days will have the significant improvement of the profitability of the sugar manufacturing units of Andhra Pradesh.
- The cash conversion cycle in Andhra Pradesh and Telangana states is at obstinate level which is leading to industries with lower profitability. The study recommends the efficient management steps are require decreasing the cash conversion cycle days so that profitability will have upward movement.
- In general many sugar manufacturing units' especially small companies tend to have lower fixed assets and depend on the turnover of the current assets to generate high profits. This phenomenon is observed in Andhra Pradesh sugar

units with this study. This kind of accounting activity will lead to liquidity crunch and leads to bankruptcy.

- Sugar manufacturing units are agro based industries are most vulnerable to the monsoon. The government should treat this sector in different angle and should not treat under uniform tax policy along with other industries. Agriculture formers are associated with these industries directly, so special provision is required to encourage the industry which in turn benefits the farmers.

5.4 CONCLUSION

The conclusion provides in brief, the overall objectives of value creation by sugar units in AP and Telangana and the constraints to achieve the objective have been presented.

The overall working capital management of select sample sugar companies in the state of Andhra Pradesh and Telangana is satisfactory.

The profitability performance of the select sample sugar companies in the states of Andhra Pradesh and Telangana in terms of operating profit margin, Return on total asset are not at satisfactory level.

There is significant difference in all key components of working capital among the units of Andhra Pradesh and Telangana

Overall, working capital components like inventory period, accounts receivables period, accounts payables period and cash conversion cycle are correlated with Profitability(ROTA) of select units in Andhra Pradesh and Telangana states.

Practical utility of the study

The present study is mostly an analytical research on the impact of working capital management on profitability in Andhra Pradesh and Telangana sugar industry during 2005-06 to 2014-15. The concepts of profit and profitability have been minutely discussed. The study has also given an overall idea of working capital components impact on profitability of the selected sugar industries. Further, the study compared the performance of working capital management of two states. The study also tests some hypotheses concerning the profitability of the 18 sugar industries. It is hoped that the study will be useful to the corporate sector in India in general, and

entrepreneurs, financial managers, financial institutions, investors, policy makers and researchers in particular, for evaluating the profitability of any industry. The sick unit in the corporate sector can use of these findings for improving the financial as well as operational efficiency in future. The government can also use the findings of the study while formulating the industrial and investment policies for better industrial climate in newly formed state along with the Telangana in south India sugar industry in particular and for the country in general. Finally, sugar industries of Andhra Pradesh and Telangana can make the best use of the findings of the study for better financial management.

Scope for further research

Any research study can explore only a limited field of knowledge. There are many aspects that need to be researched further. In the present case also there is a considerable scope for further research. In spite of every attempt to make this study more intensive there are quite many fields remained unveiled owing to constrains of time and resources. Financial study, specially, has numerous dimensions. Each component of the financial statement has got scope for an extensive study. An analysis of the social profitability of the three regions sugar industry with the help of value added and the other techniques can provide an ample scope for further research. A considerable scope for further research also exists in the area of diversification, mergers and takeover. Another interesting theme would be to identify sick and healthy units separately in the Telangana state sugar industry and find out discriminating characteristic of each group with respect to performance. A study can also be undertaken in the area of performance appraisal comparing private sector and public sector.

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